Fig. 1

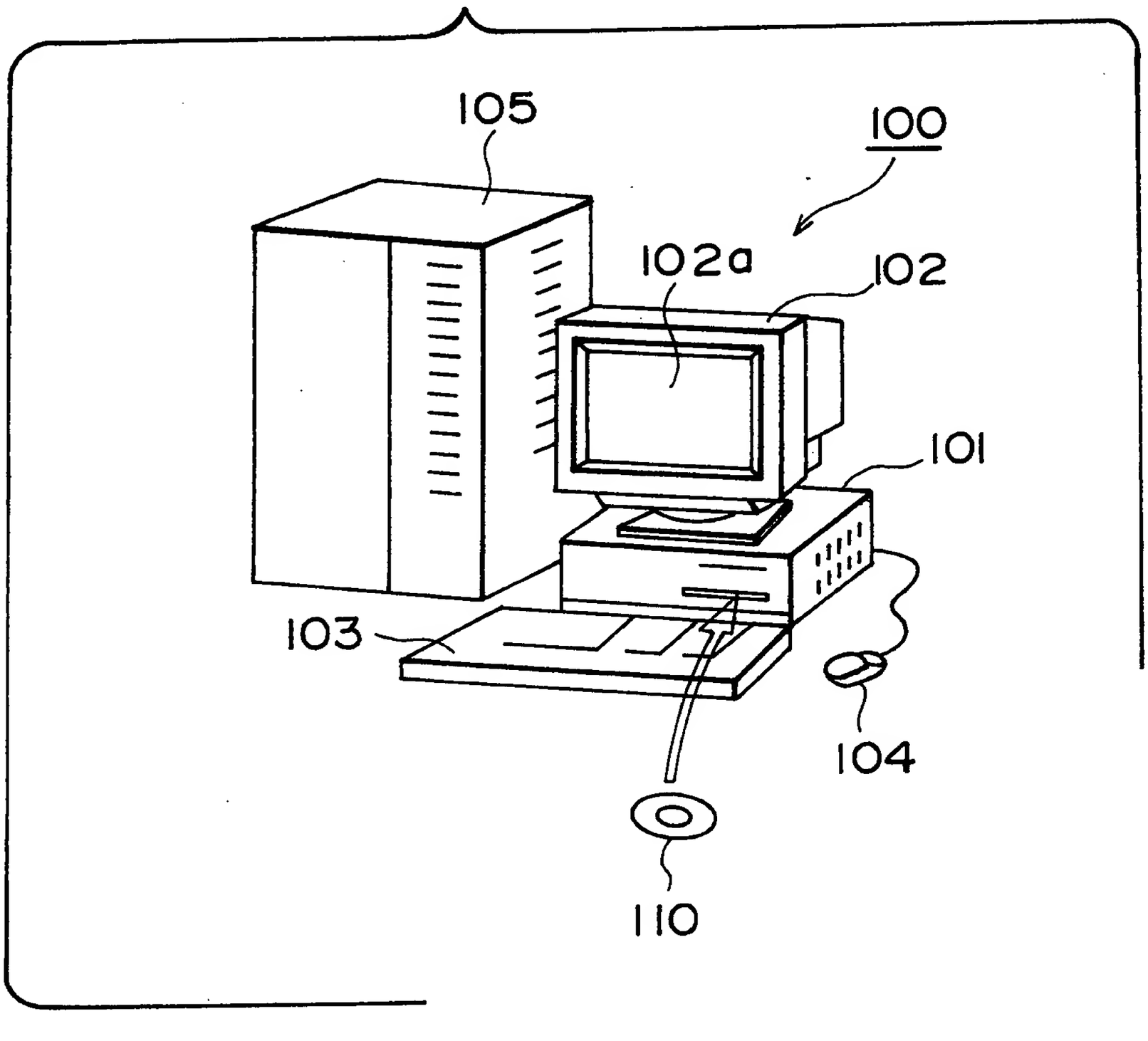

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Fig. 2

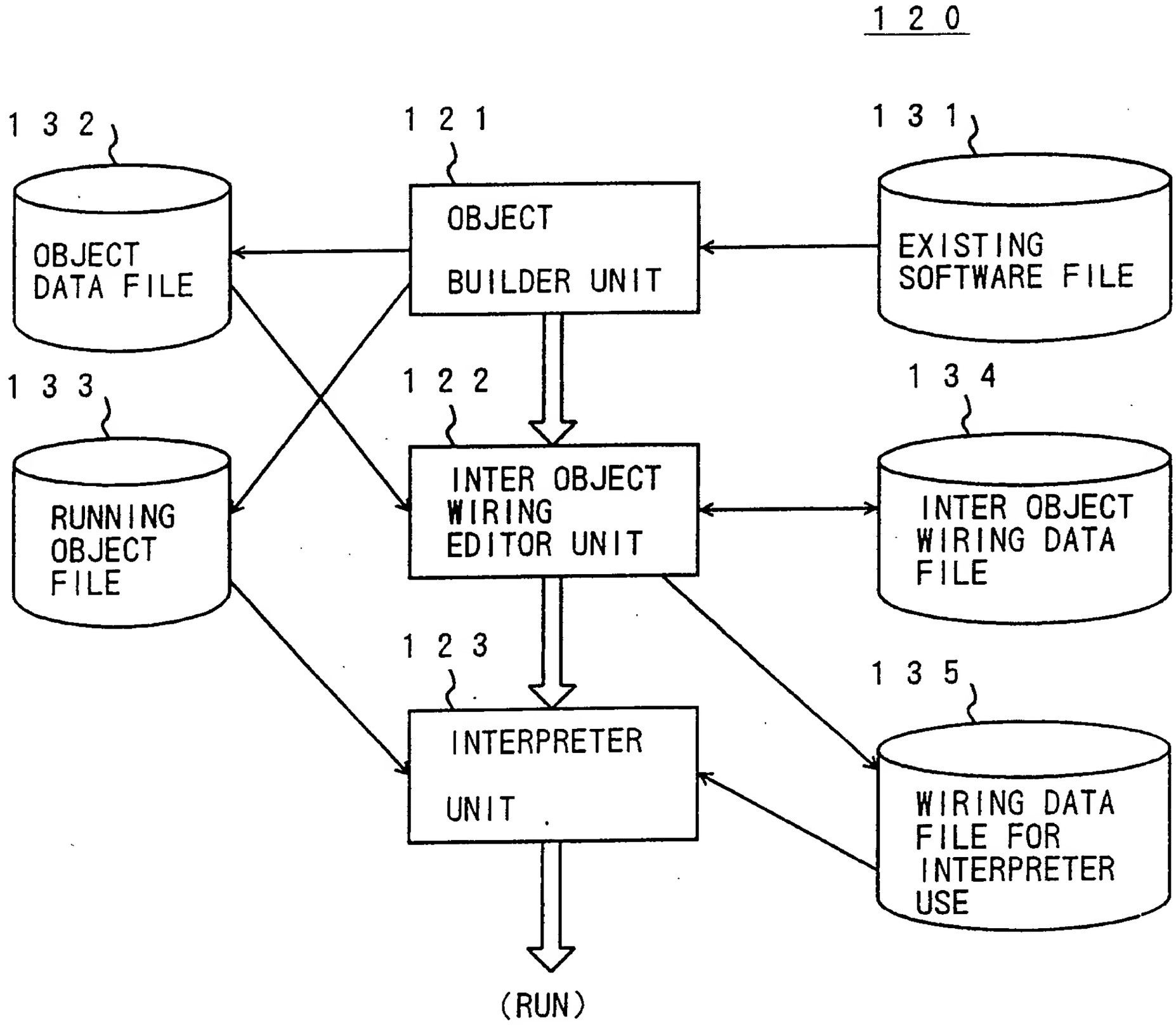

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Fig. 3

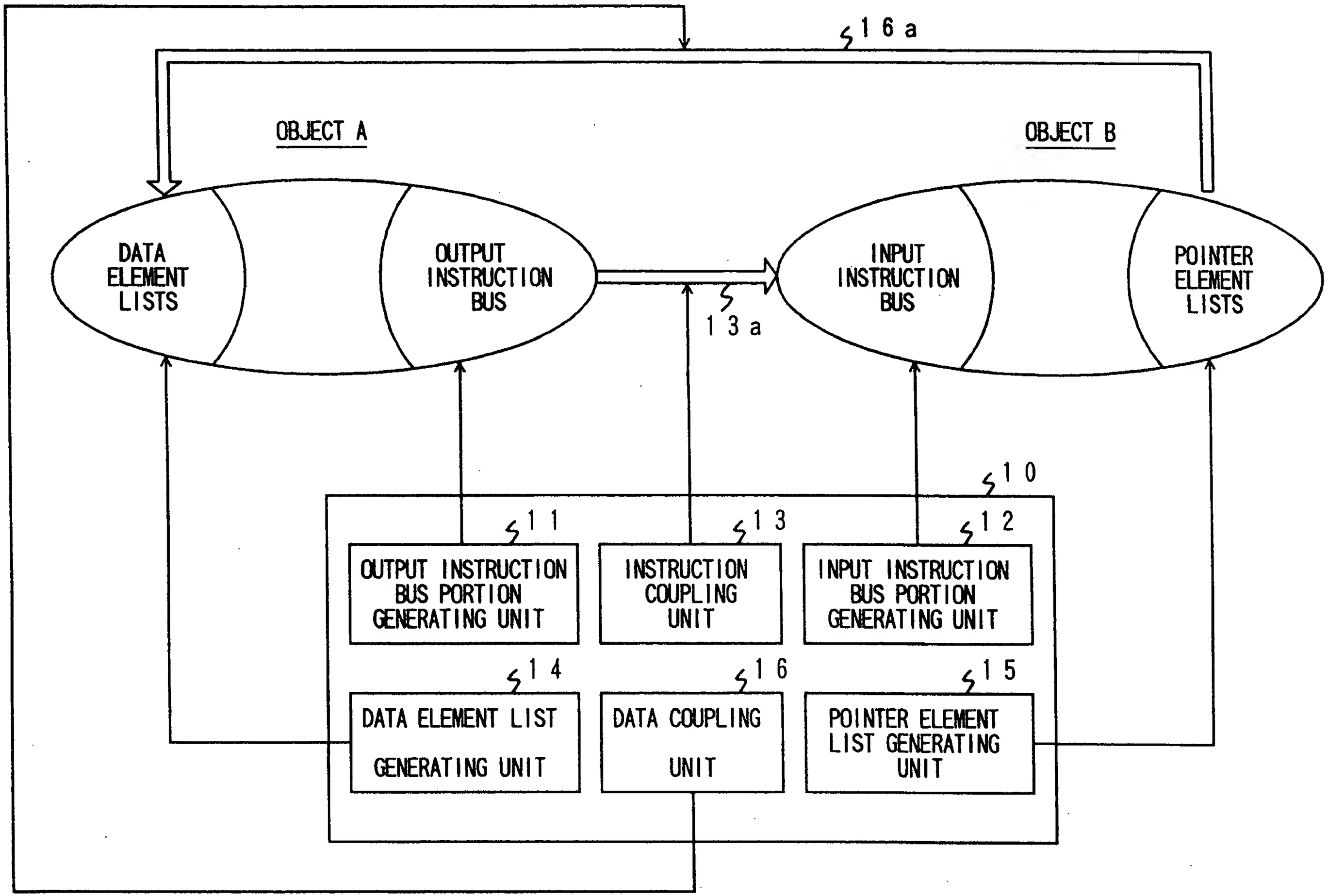
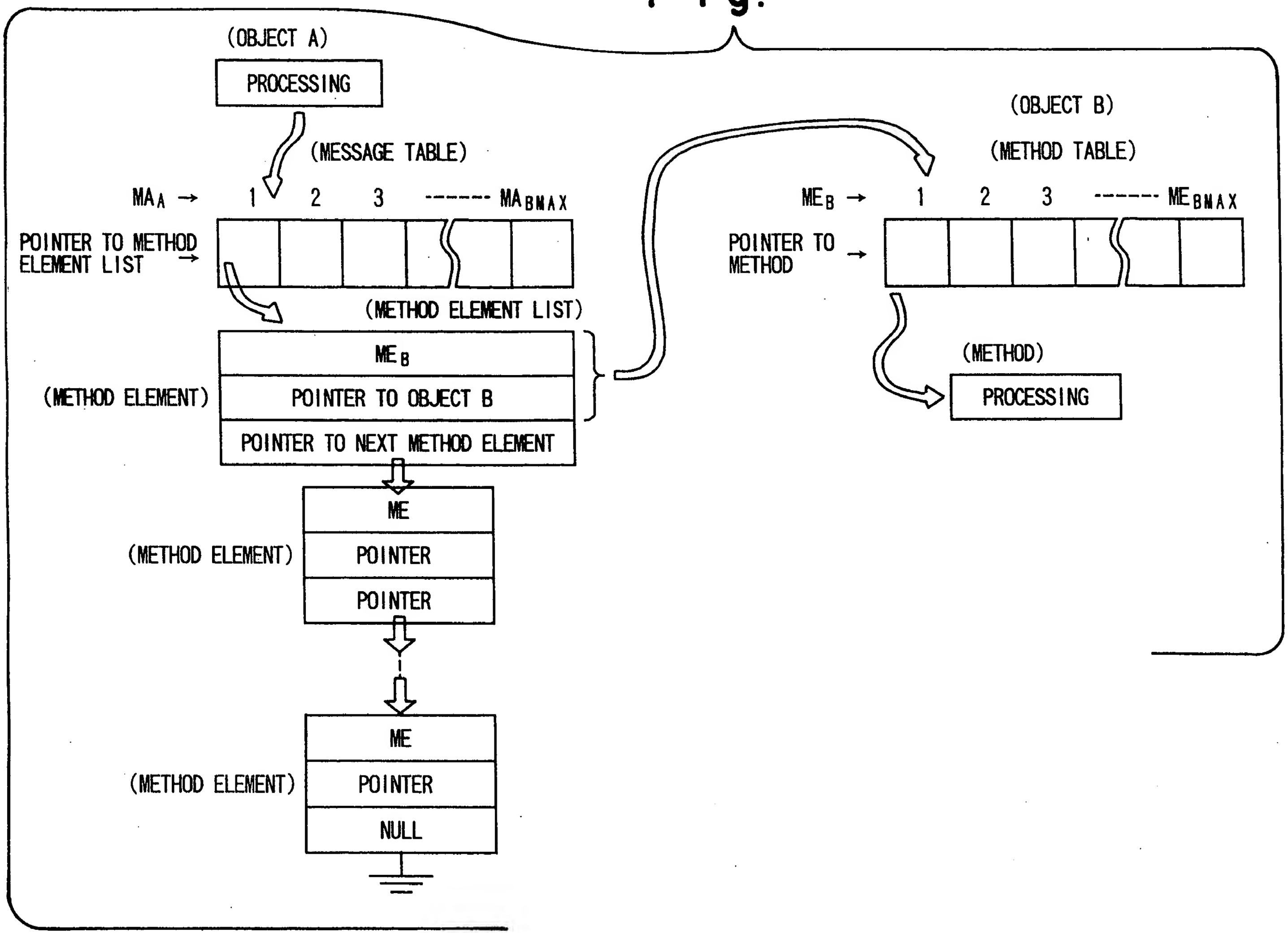

16a
OBJECT A
OBJECT B
DATA ELEMENT LISTS
OUTPUT INSTRUCTION BUS
13a
INPUT INSTRUCTION BUS
POINTER ELEMENT LISTS
10
11
13
12
OUTPUT INSTRUCTION BUS PORTION GENERATING UNIT
INSTRUCTION COUPLING UNIT
INPUT INSTRUCTION BUS PORTION GENERATING UNIT
14
16
15
DATA ELEMENT LIST GENERATING UNIT
DATA COUPLING UNIT
POINTER ELEMENT LIST GENERATING UNIT

Fig. 4


(OBJECT A)
PROCESSING
(MESSAGE TABLE)
MA_A →
1
2
3

MA_BMAX
POINTER TO METHOD ELEMENT LIST →
(METHOD ELEMENT LIST)
(METHOD ELEMENT)
ME_B
POINTER TO OBJECT B
POINTER TO NEXT METHOD ELEMENT
(OBJECT B)
(METHOD TABLE)
ME_B →
1
2
3

ME_BMAX
POINTER TO METHOD →
(METHOD)
PROCESSING
(METHOD ELEMENT)
ME
POINTER
POINTER
(METHOD ELEMENT)
ME
POINTER
NULL

Fig. 5

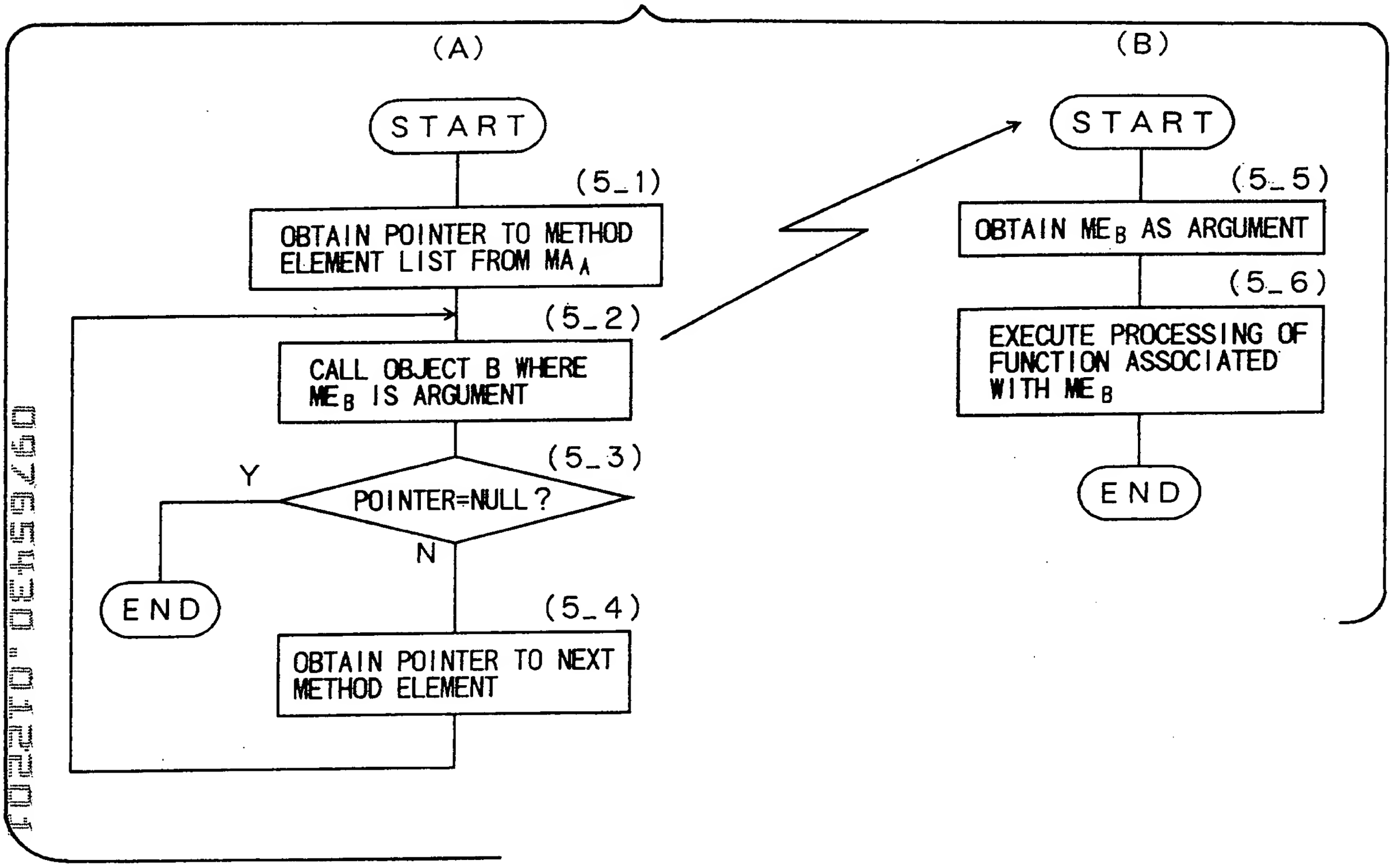

(A)
START
(5_1)
OBTAIN POINTER TO METHOD ELEMENT LIST FROM MA_A
(5_2)
CALL OBJECT B WHERE ME_B IS ARGUMENT
(5_3)
POINTER=NULL?
Y
N
END
(5_4)
OBTAIN POINTER TO NEXT METHOD ELEMENT
(B)
START
(5_5)
OBTAIN ME_B AS ARGUMENT
(5_6)
EXECUTE PROCESSING OF FUNCTION ASSOCIATED WITH ME_B
END

Fig. 6

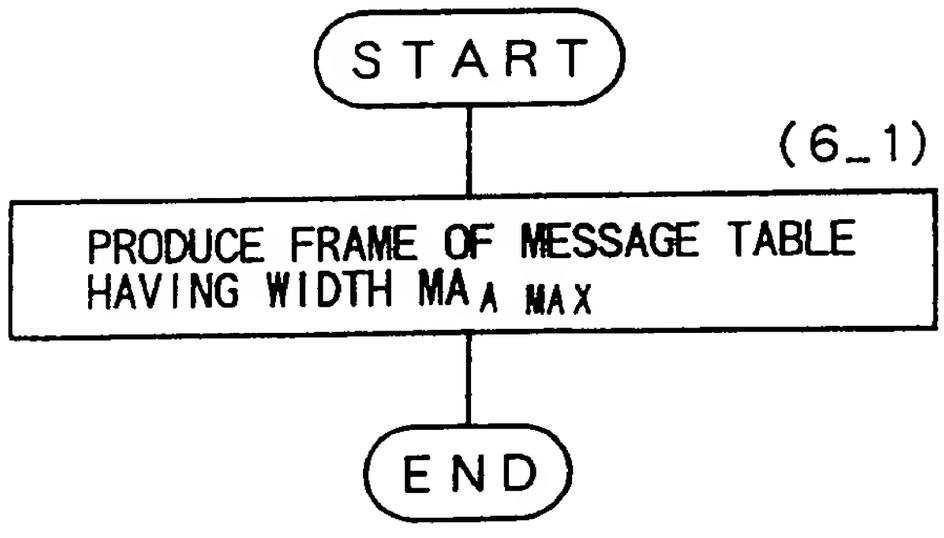

START
(6_1)
PRODUCE FRAME OF MESSAGE TABLE HAVING WIDTH MA_A MAX
END

Fig. 7

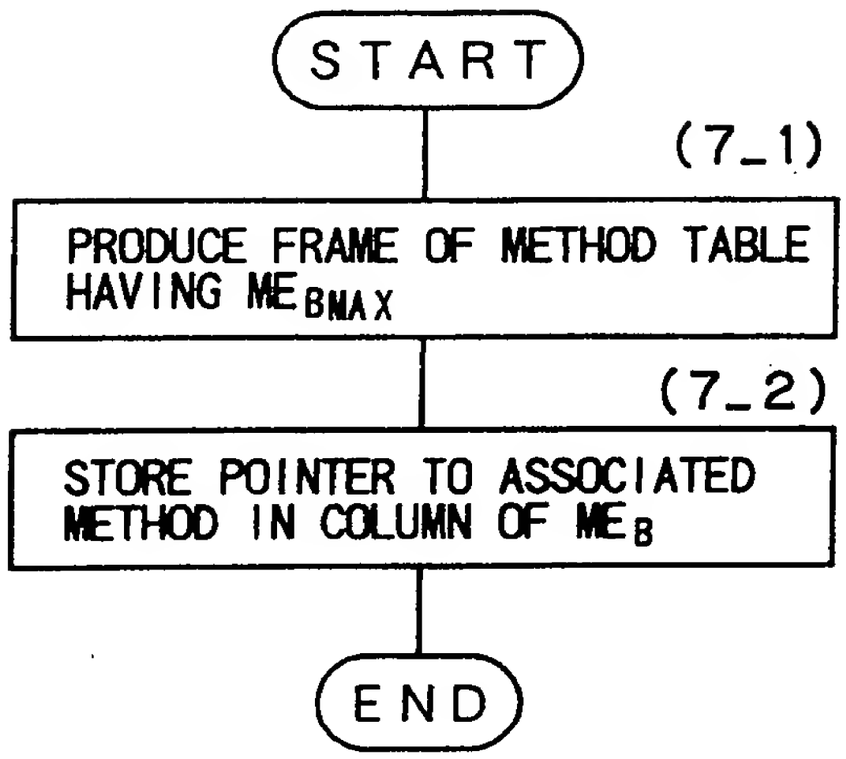


Fig. 8

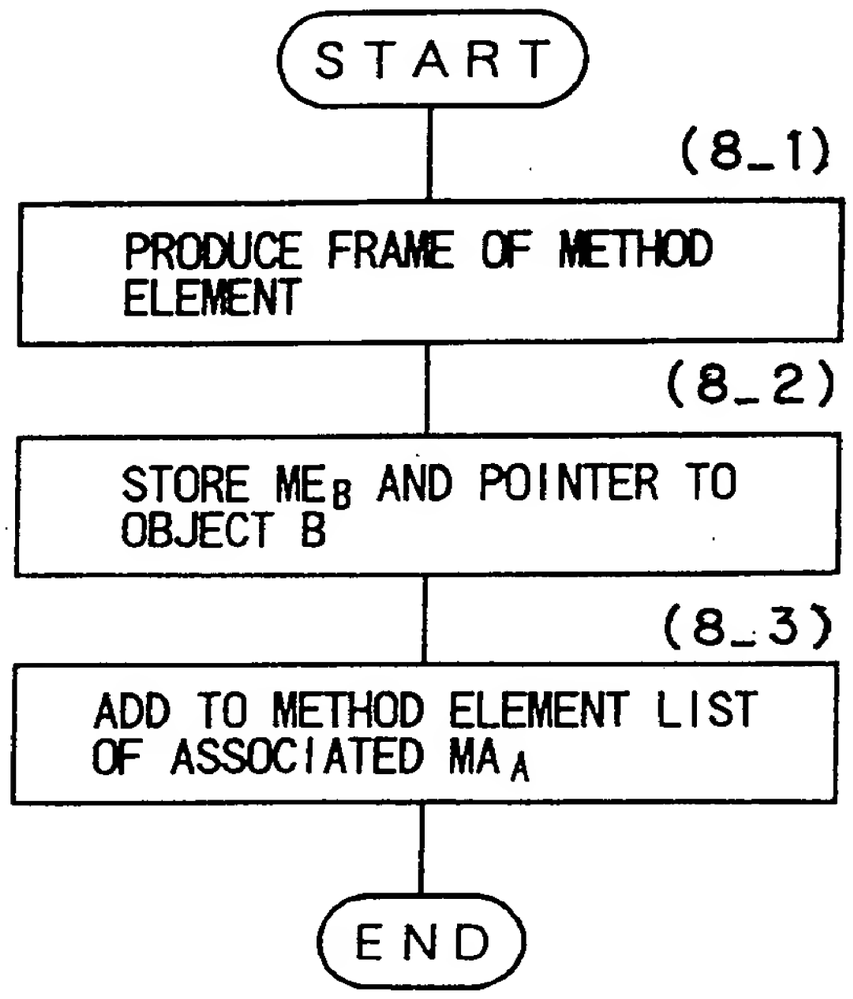


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Fig. 9

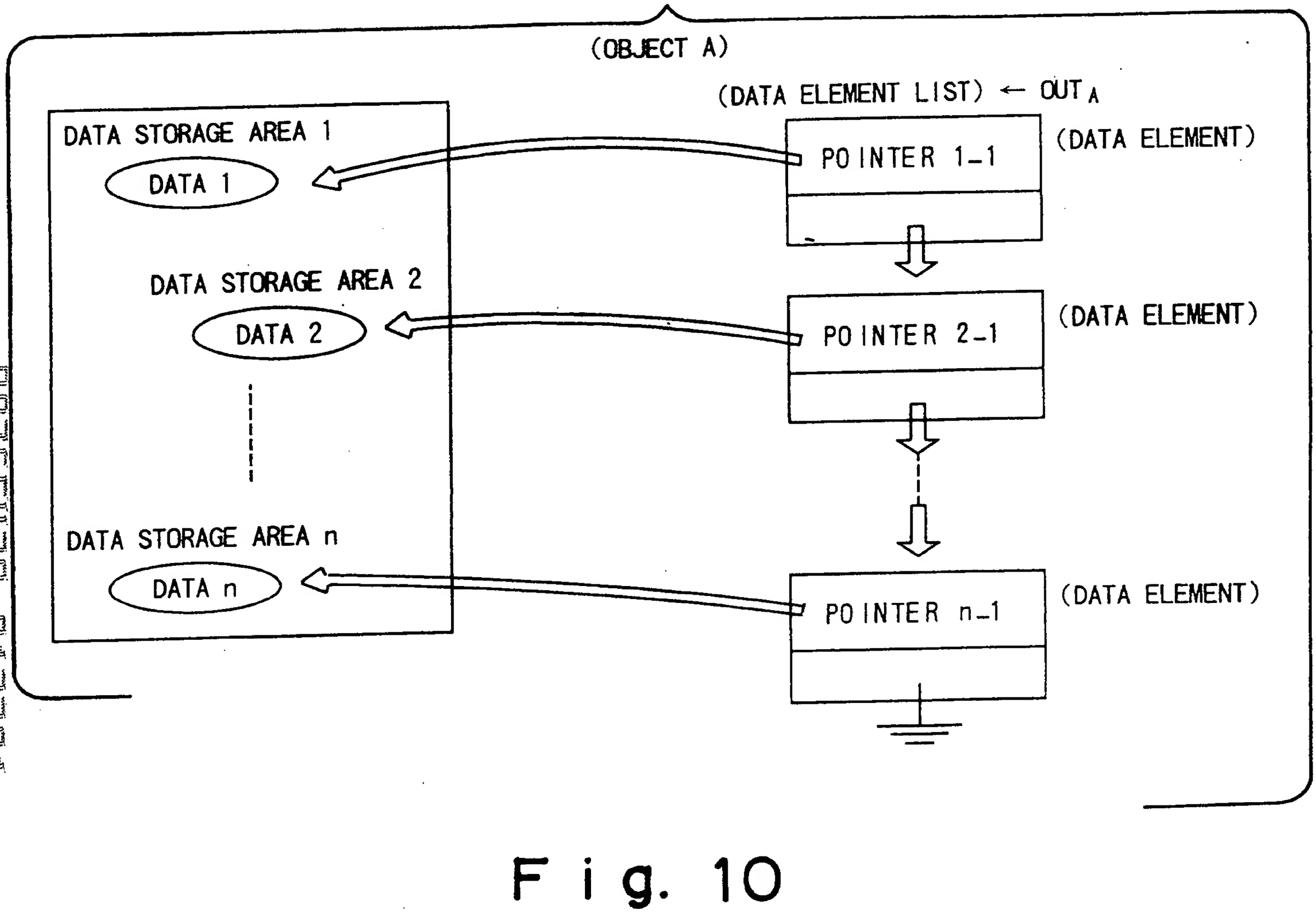

(OBJECT A)
(DATA ELEMENT LIST) ← OUT A
DATA STORAGE AREA 1
DATA 1
DATA STORAGE AREA 2
DATA 2
DATA STORAGE AREA n
DATA n
POINTER 1-1
POINTER 2-1
POINTER n-1
(DATA ELEMENT)
(DATA ELEMENT)
(DATA ELEMENT)

Fig. 10

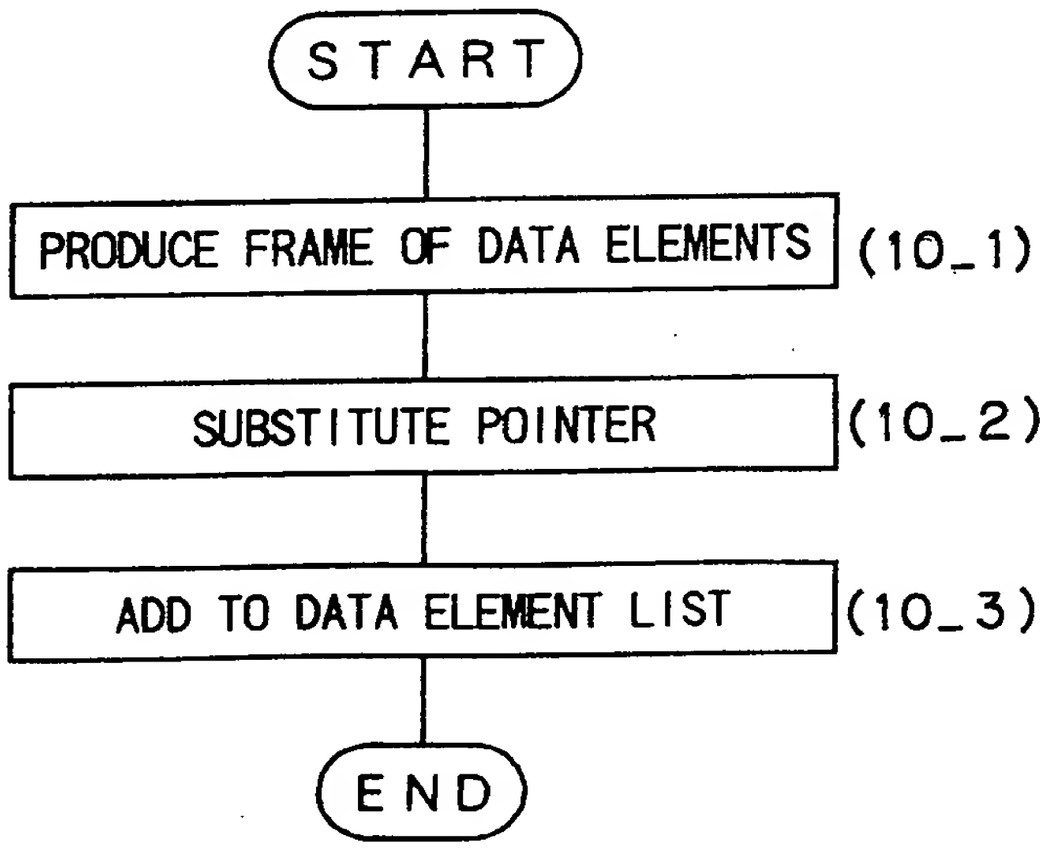

START
PRODUCE FRAME OF DATA ELEMENTS
(10_1)
SUBSTITUTE POINTER
(10_2)
ADD TO DATA ELEMENT LIST
(10_3)
END

Fig. 11

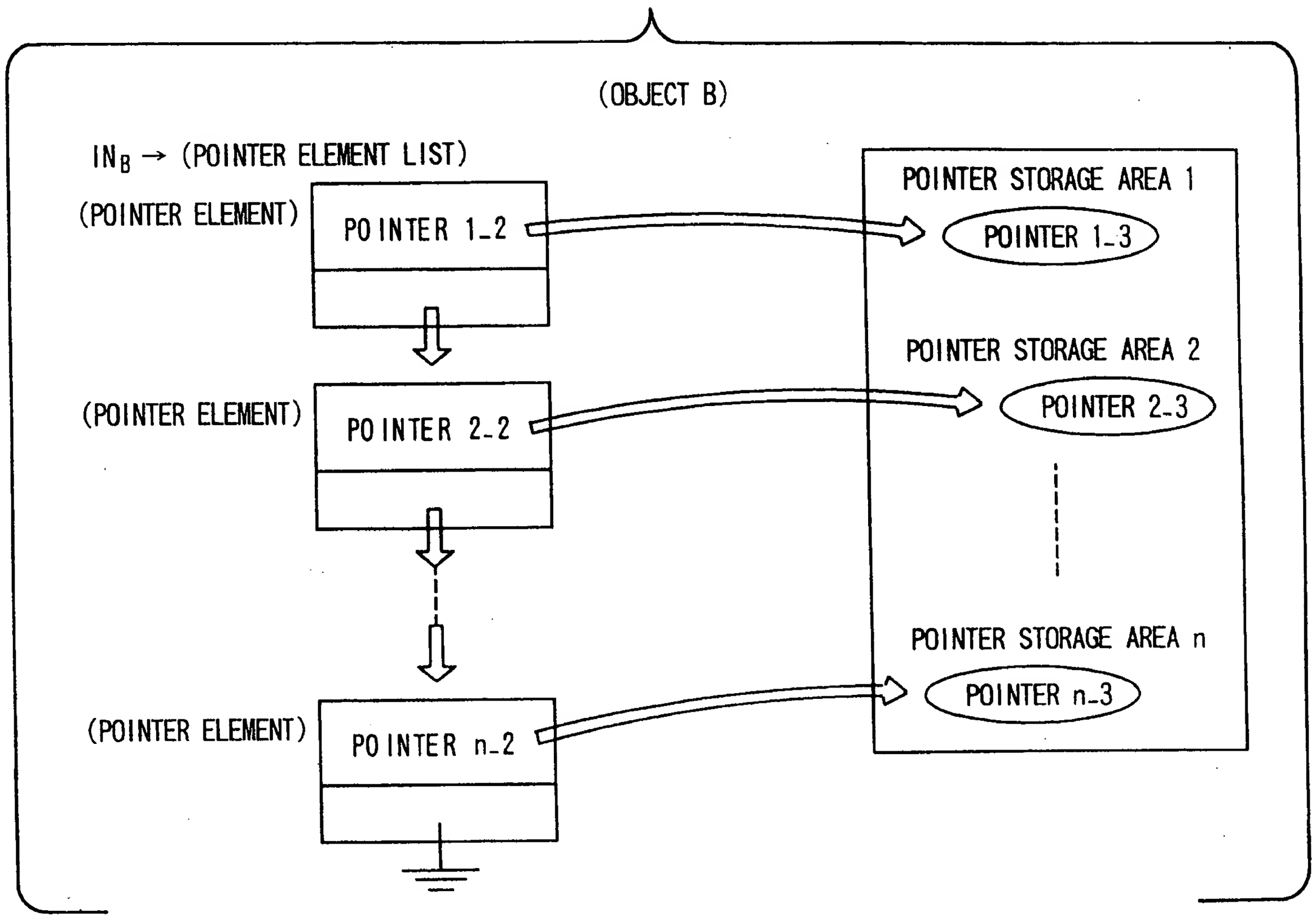

(OBJECT B)
IN_B → (POINTER ELEMENT LIST)
(POINTER ELEMENT)
POINTER 1_2
(POINTER ELEMENT)
POINTER 2_2
(POINTER ELEMENT)
POINTER n_2
POINTER STORAGE AREA 1
POINTER 1_3
POINTER STORAGE AREA 2
POINTER 2_3
POINTER STORAGE AREA n
POINTER n_3

Fig. 12

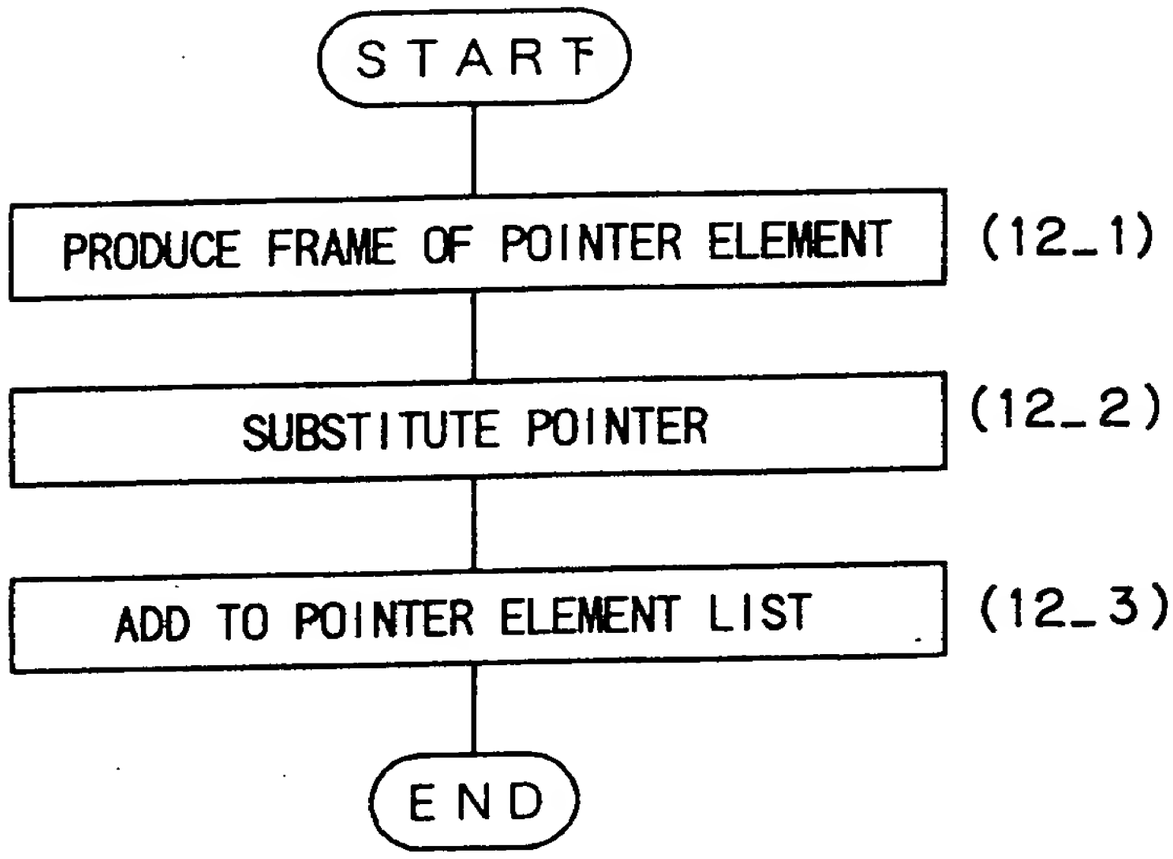
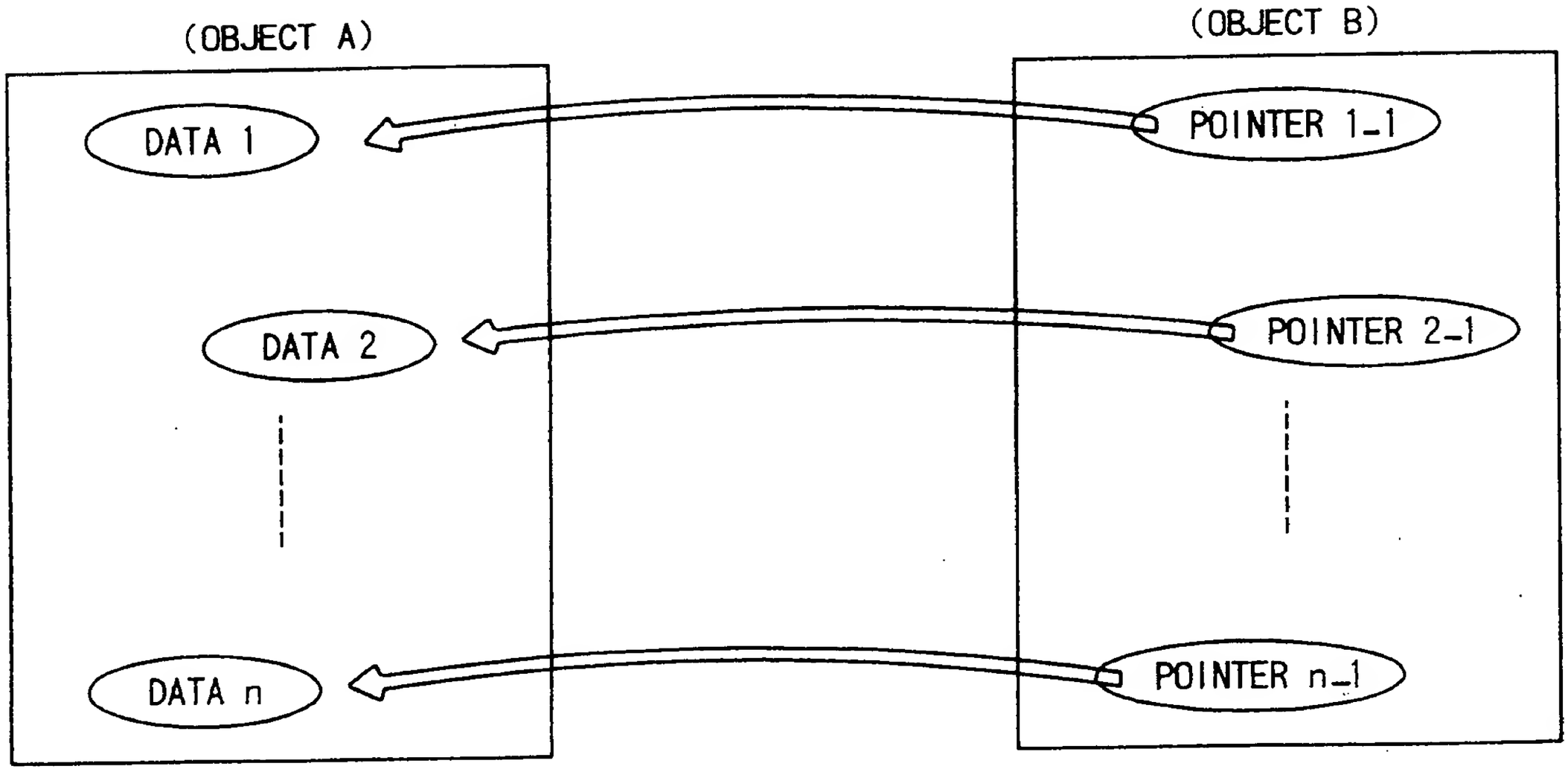
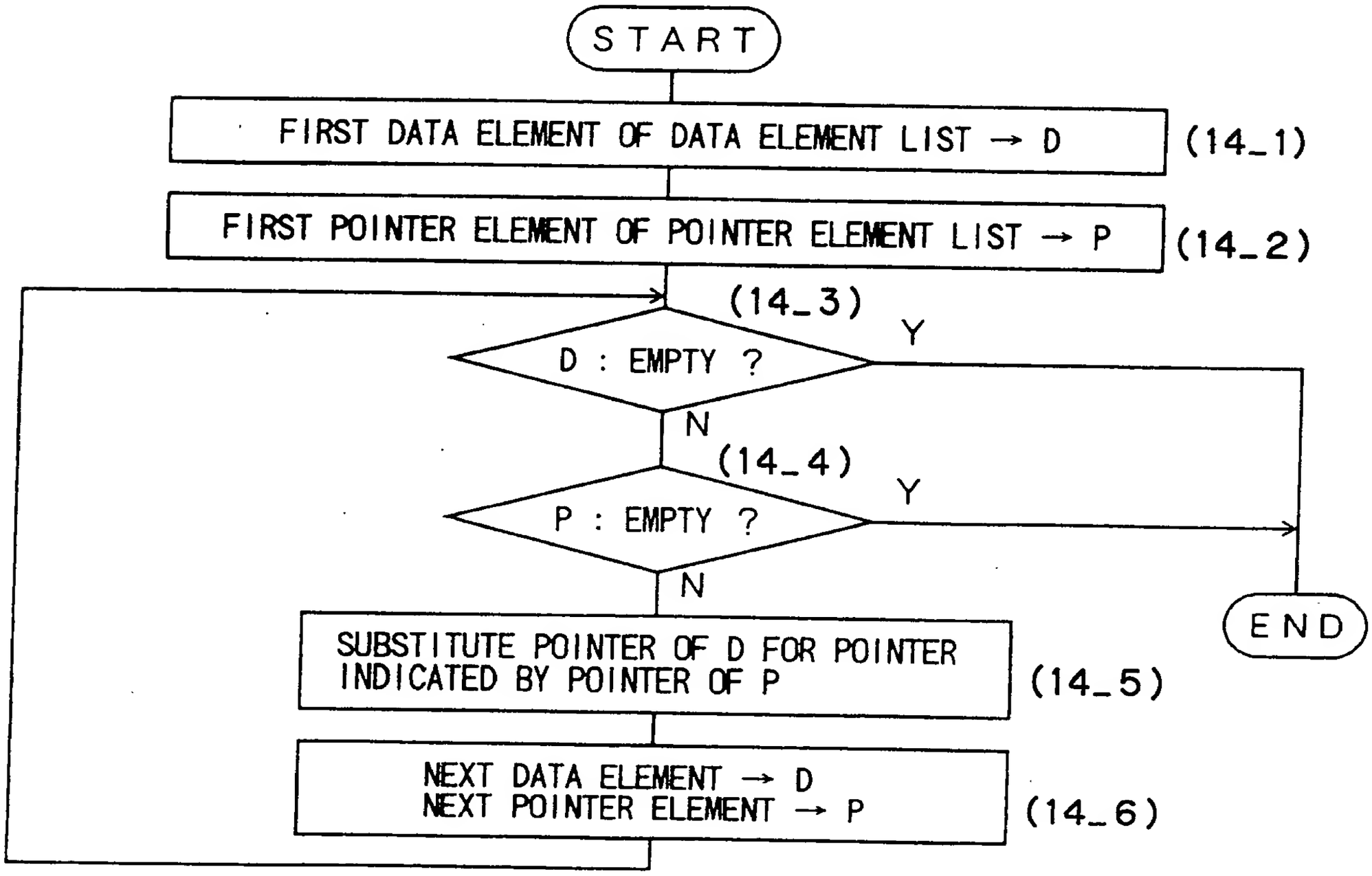


Fig. 13



FILE: 0515-0515760

Fig. 14



0050-0050-0050-0050

Fig. 15

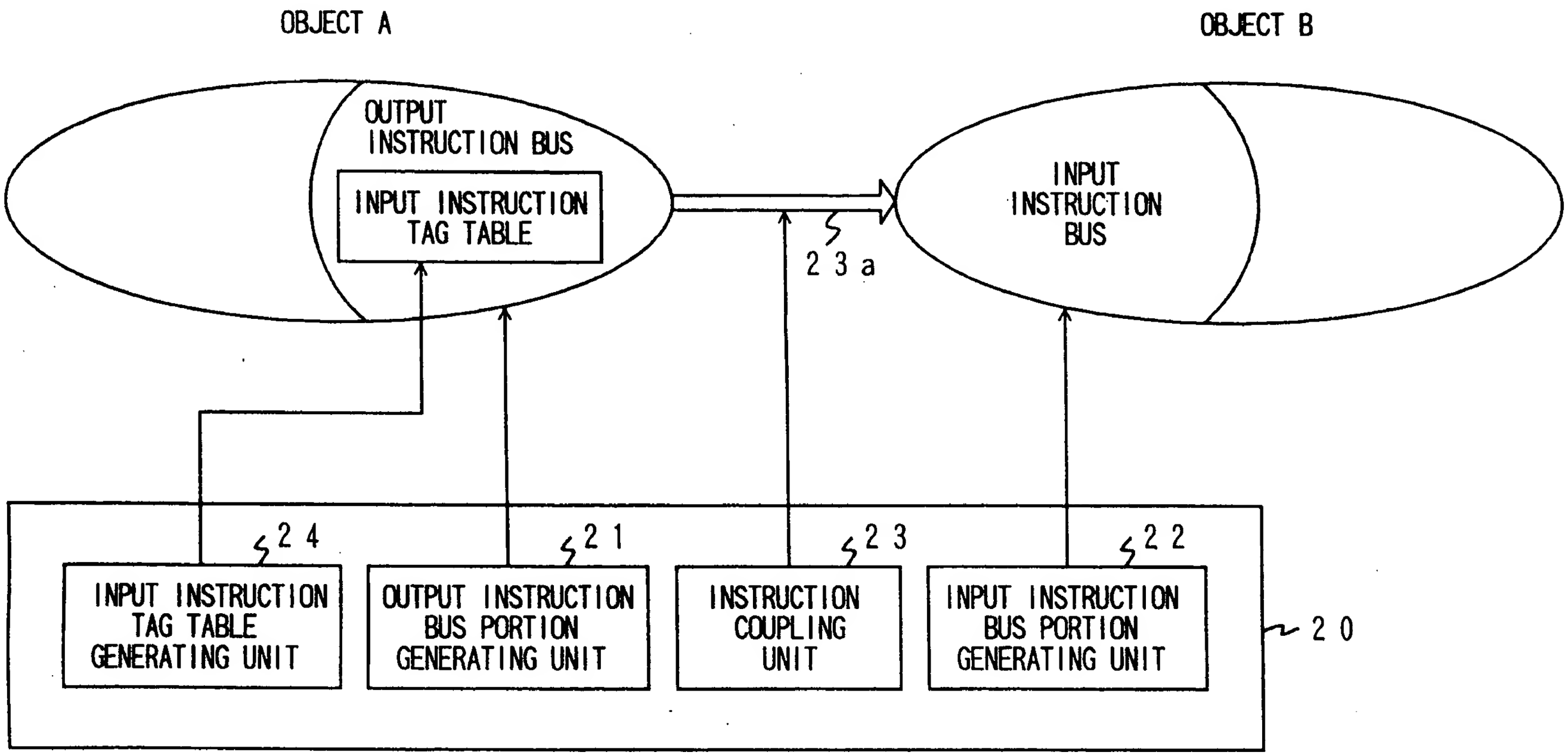

OBJECT A
OBJECT B
OUTPUT INSTRUCTION BUS
INPUT INSTRUCTION TAG TABLE
INPUT INSTRUCTION BUS
23a
24
21
23
22
INPUT INSTRUCTION TAG TABLE GENERATING UNIT
OUTPUT INSTRUCTION BUS PORTION GENERATING UNIT
INSTRUCTION COUPLING UNIT
INPUT INSTRUCTION BUS PORTION GENERATING UNIT
20

Fig. 16

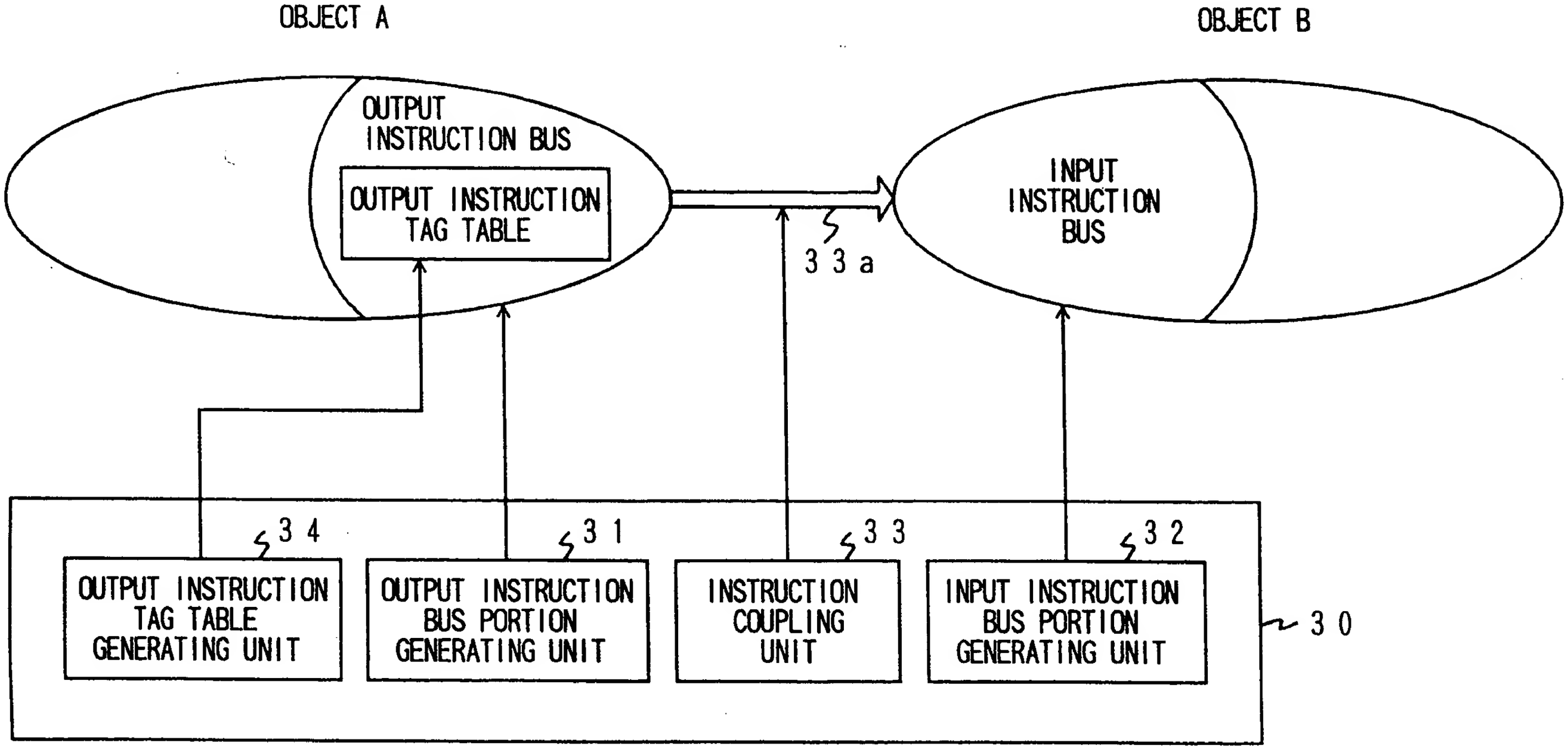

OBJECT A
OBJECT B
OUTPUT INSTRUCTION BUS
OUTPUT INSTRUCTION TAG TABLE
INPUT INSTRUCTION BUS
33a
34
31
33
32
OUTPUT INSTRUCTION TAG TABLE GENERATING UNIT
OUTPUT INSTRUCTION BUS PORTION GENERATING UNIT
INSTRUCTION COUPLING UNIT
INPUT INSTRUCTION BUS PORTION GENERATING UNIT
30

Fig. 17

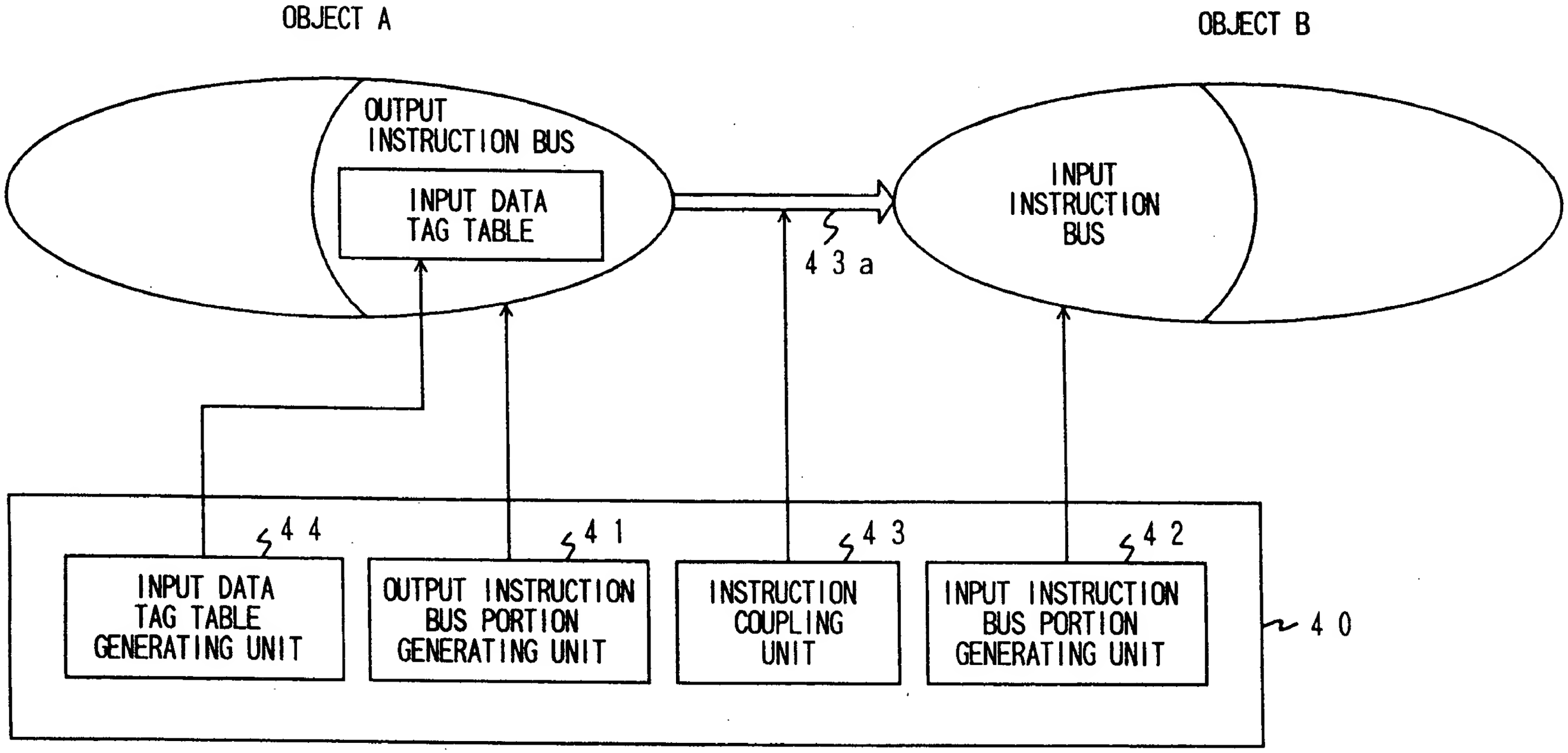

OBJECT A
OBJECT B
OUTPUT INSTRUCTION BUS
INPUT DATA TAG TABLE
INPUT INSTRUCTION BUS
43a
INPUT DATA TAG TABLE GENERATING UNIT
44
OUTPUT INSTRUCTION BUS PORTION GENERATING UNIT
41
INSTRUCTION COUPLING UNIT
43
INPUT INSTRUCTION BUS PORTION GENERATING UNIT
42
40

Fig. 18

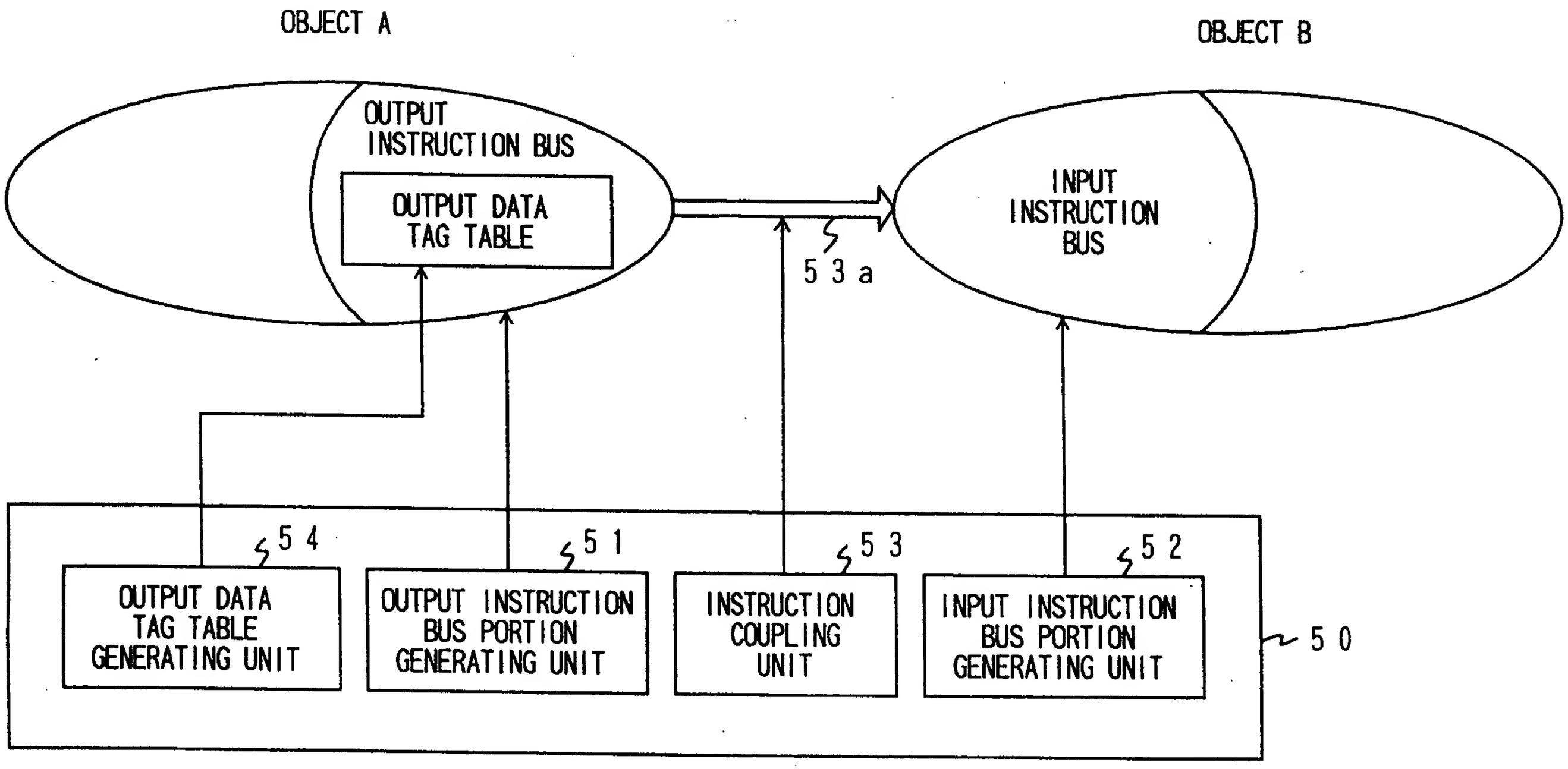

OBJECT A
OBJECT B
OUTPUT INSTRUCTION BUS
OUTPUT DATA TAG TABLE
INPUT INSTRUCTION BUS
53a
54
51
53
52
OUTPUT DATA TAG TABLE GENERATING UNIT
OUTPUT INSTRUCTION BUS PORTION GENERATING UNIT
INSTRUCTION COUPLING UNIT
INPUT INSTRUCTION BUS PORTION GENERATING UNIT
50

Fig. 19

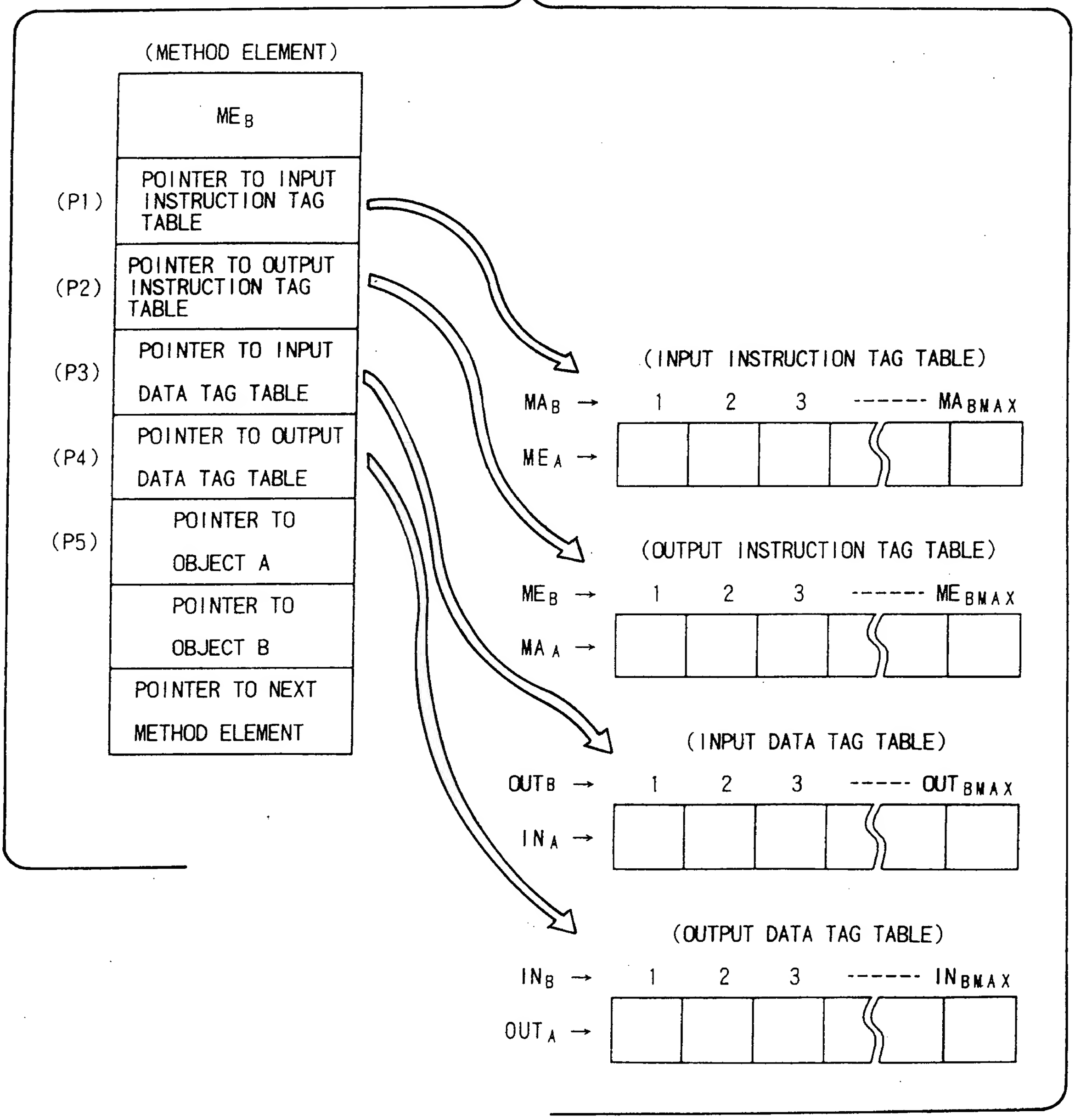


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Fig. 20

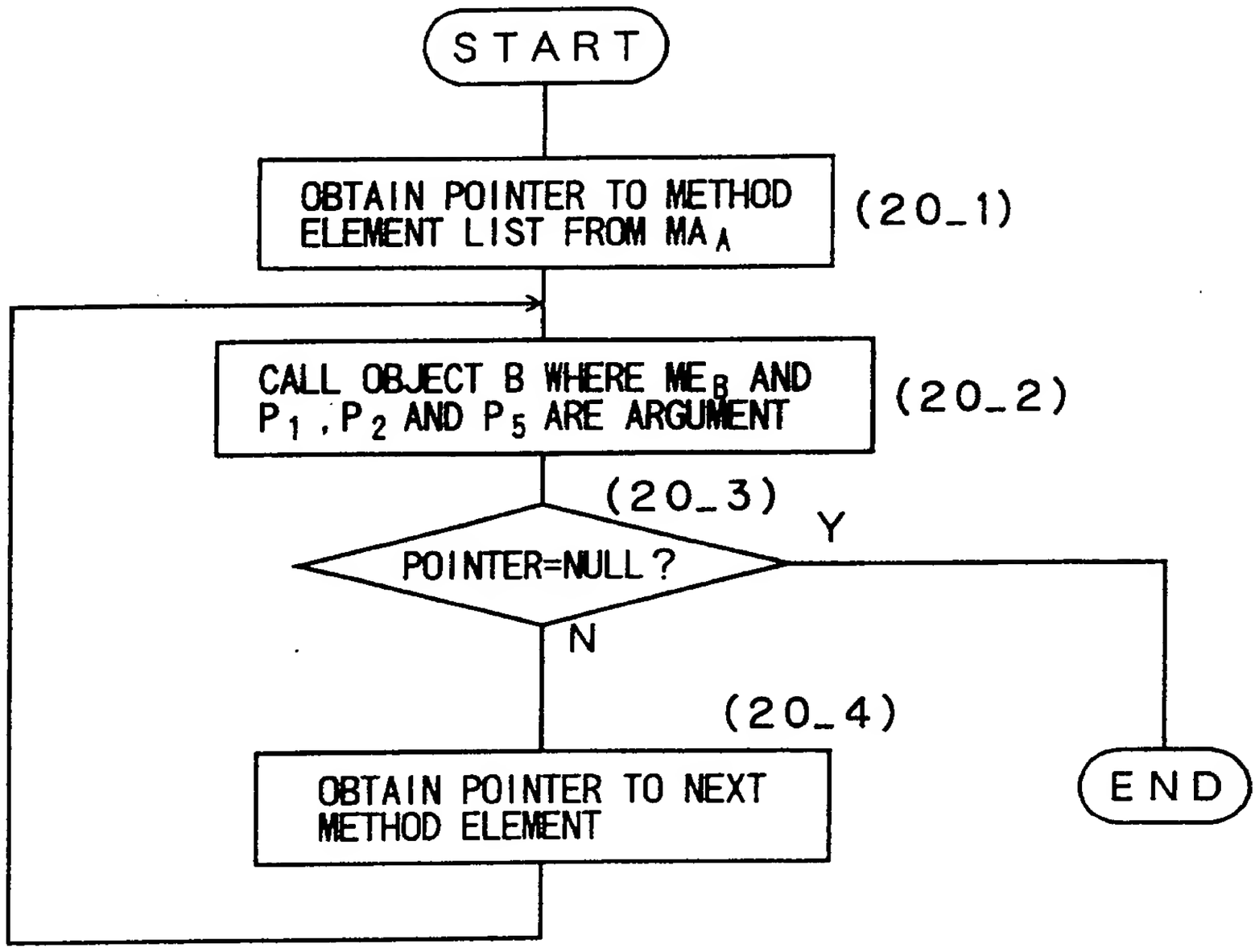
START
OBTAIN POINTER TO METHOD ELEMENT LIST FROM MA A
(20_1)
CALL OBJECT B WHERE ME B AND P 1 , P 2 AND P 5 ARE ARGUMENT
(20_2)
(20_3)
POINTER=NULL ?
Y
N
(20_4)
OBTAIN POINTER TO NEXT METHOD ELEMENT
END

Fig. 21

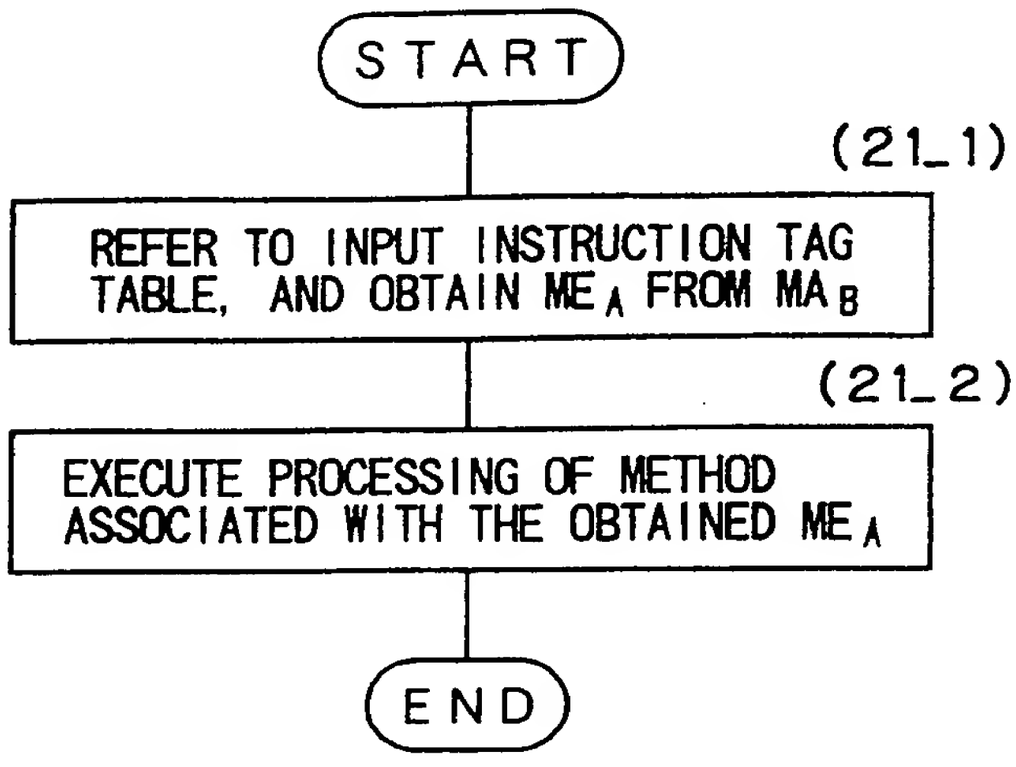
START
(21_1)
REFER TO INPUT INSTRUCTION TAG TABLE, AND OBTAIN ME A FROM MA B
(21_2)
EXECUTE PROCESSING OF METHOD ASSOCIATED WITH THE OBTAINED ME A
END

Fig.22

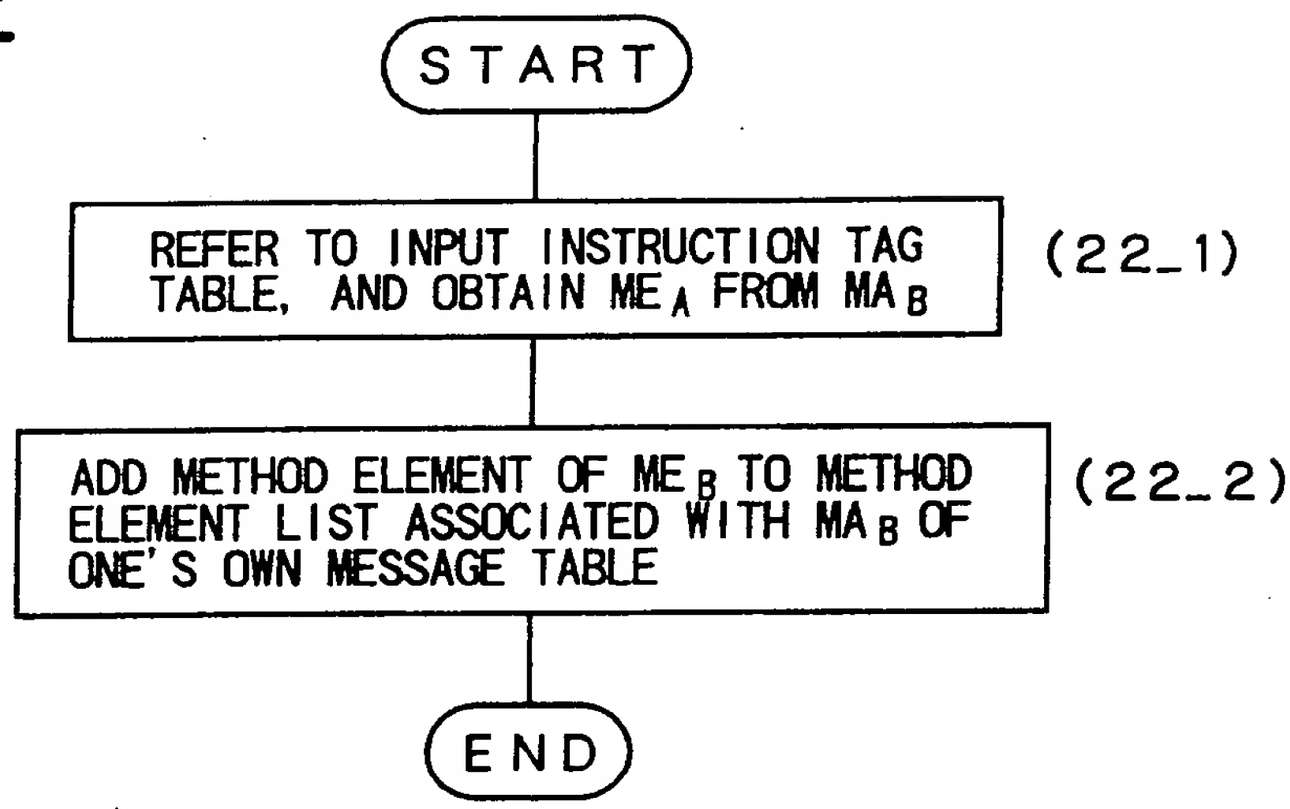

Fig.23

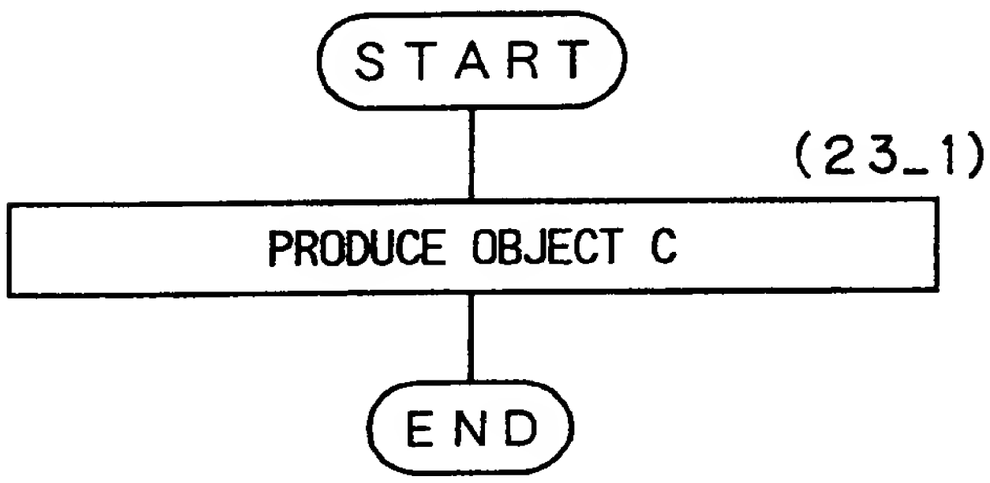

Fig.24

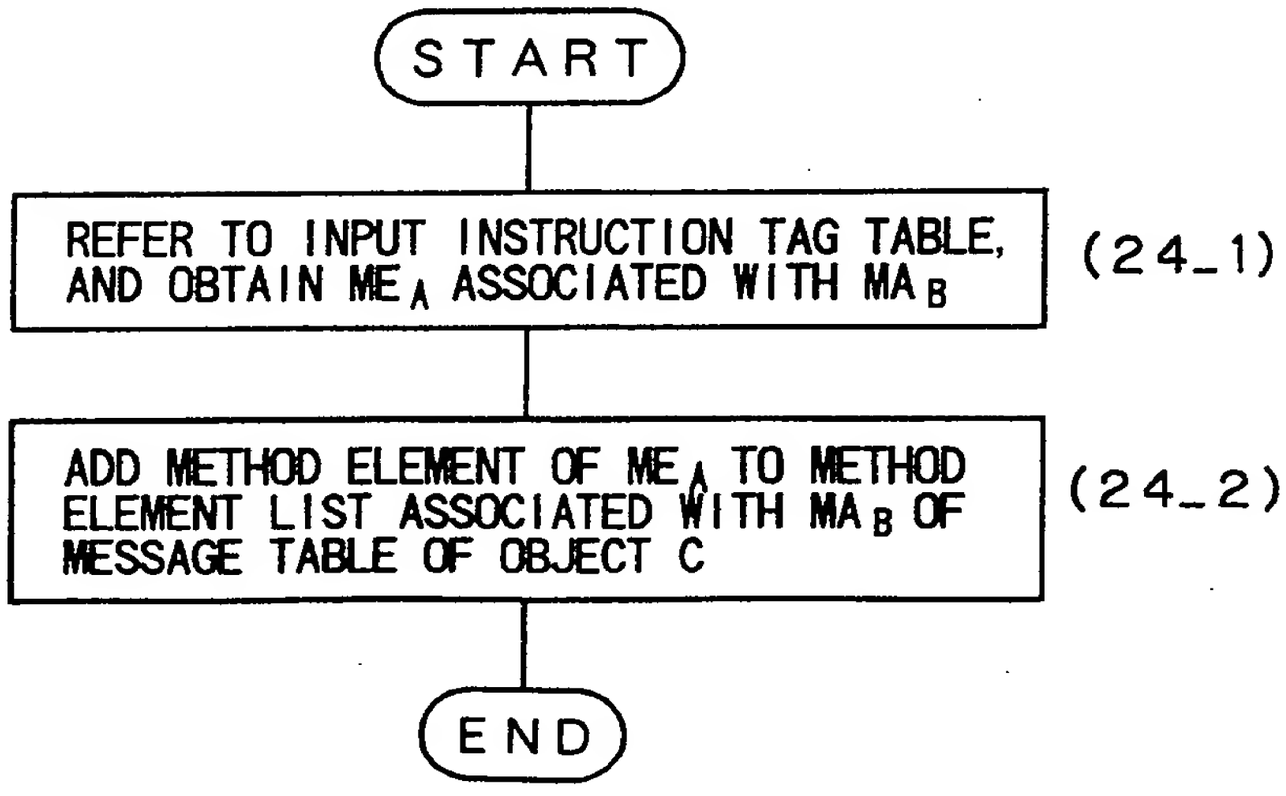

Fig. 25

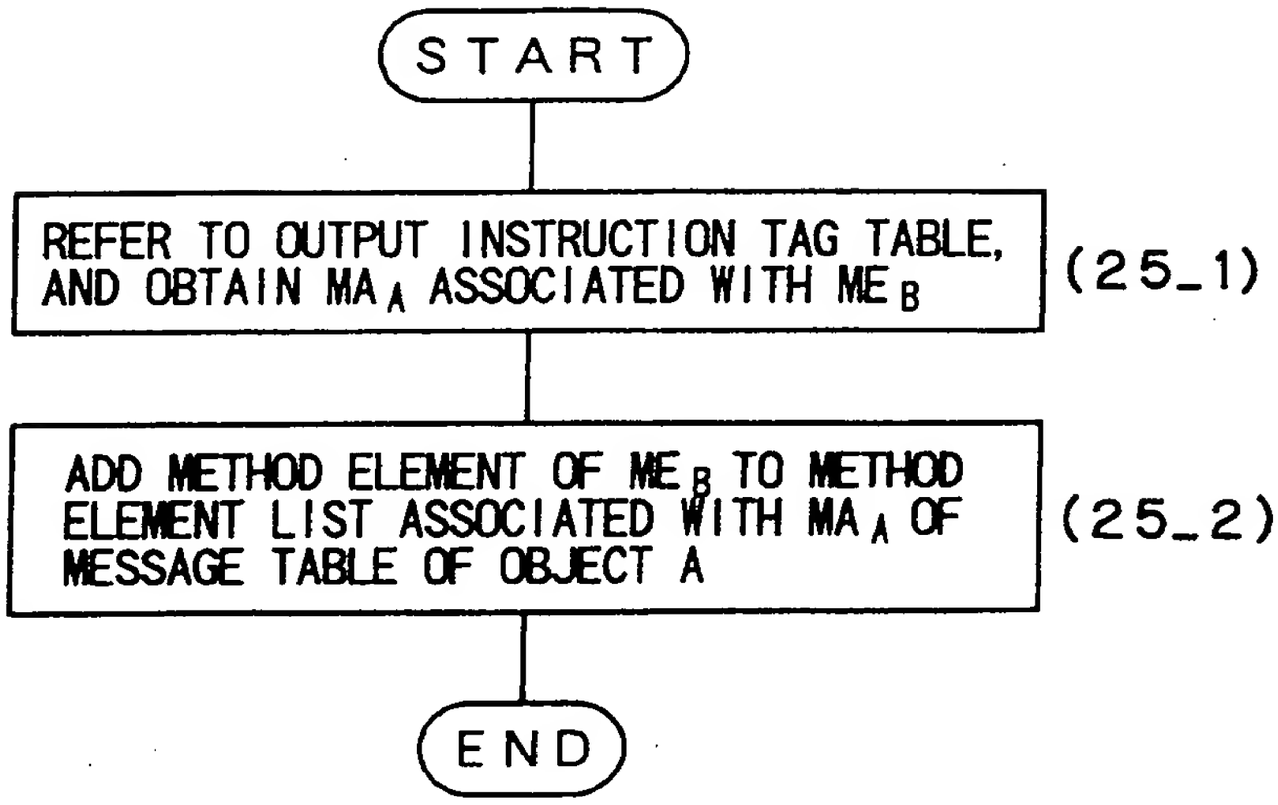

Fig. 26

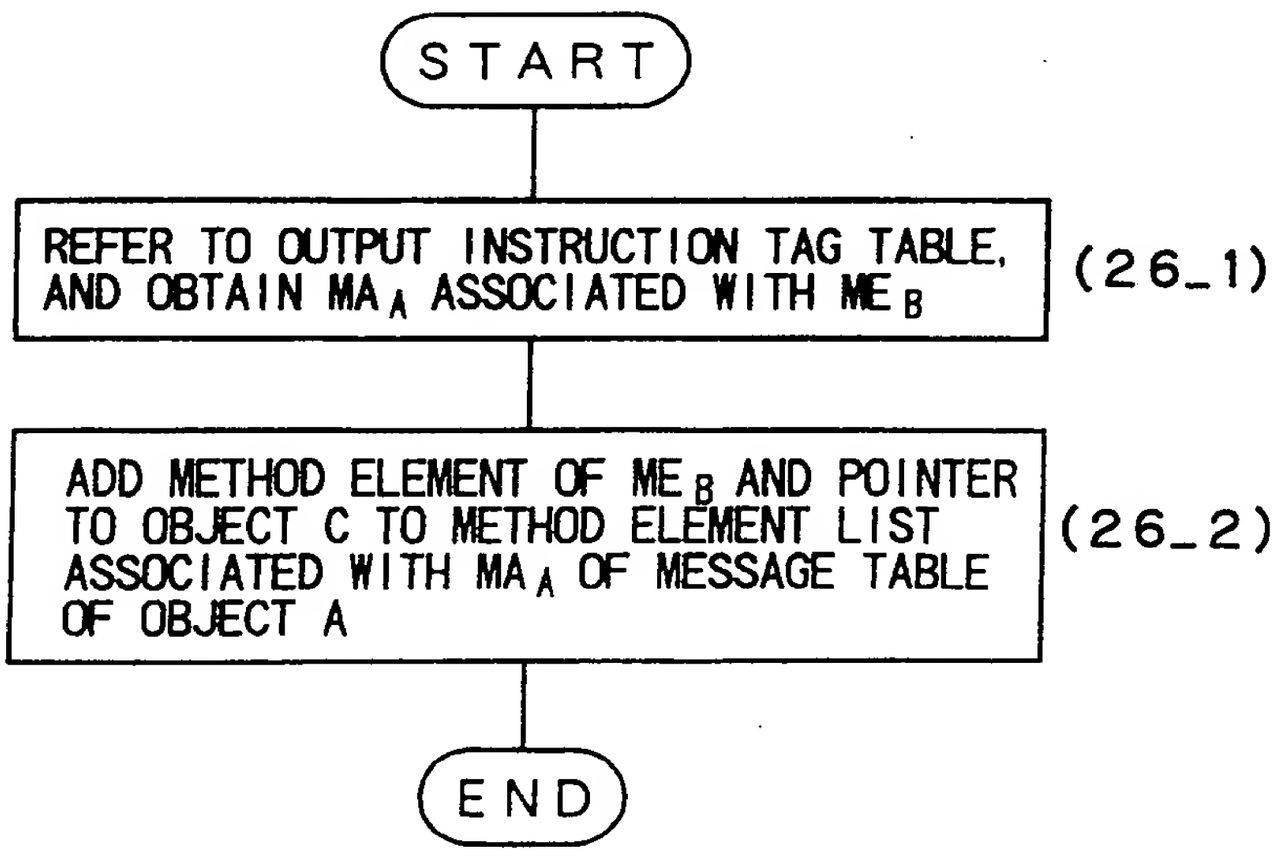

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Fig. 27

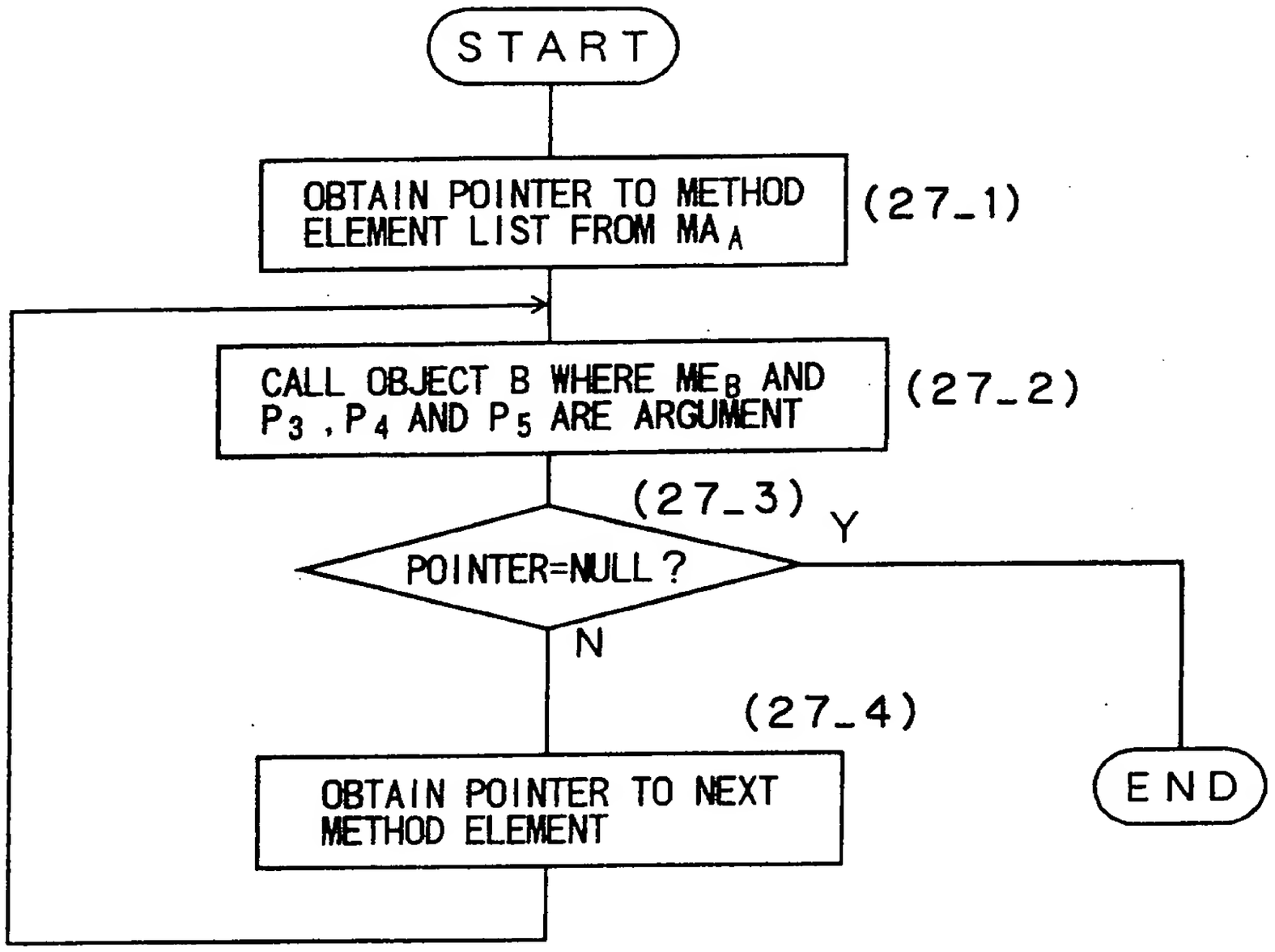
START
OBTAIN POINTER TO METHOD ELEMENT LIST FROM MA_A
(27_1)
CALL OBJECT B WHERE ME_B AND P_3, P_4 AND P_5 ARE ARGUMENT
(27_2)
(27_3)
POINTER=NULL?
Y
N
(27_4)
OBTAIN POINTER TO NEXT METHOD ELEMENT
END

Fig. 28

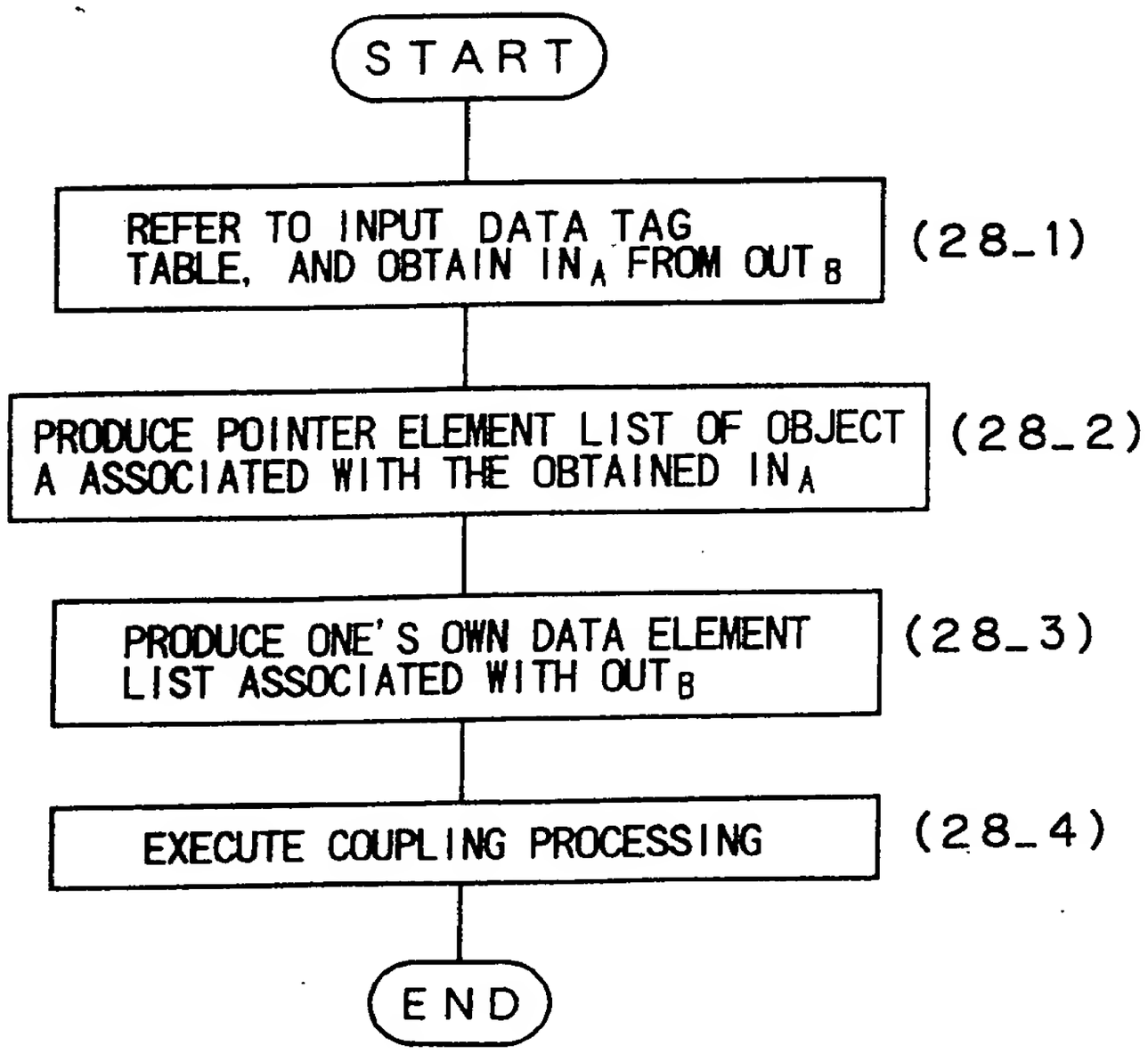
START
REFER TO INPUT DATA TAG TABLE, AND OBTAIN IN_A FROM OUT_B
(28_1)
PRODUCE POINTER ELEMENT LIST OF OBJECT A ASSOCIATED WITH THE OBTAINED IN_A
(28_2)
PRODUCE ONE'S OWN DATA ELEMENT LIST ASSOCIATED WITH OUT_B
(28_3)
EXECUTE COUPLING PROCESSING
(28_4)
END

Fig. 29

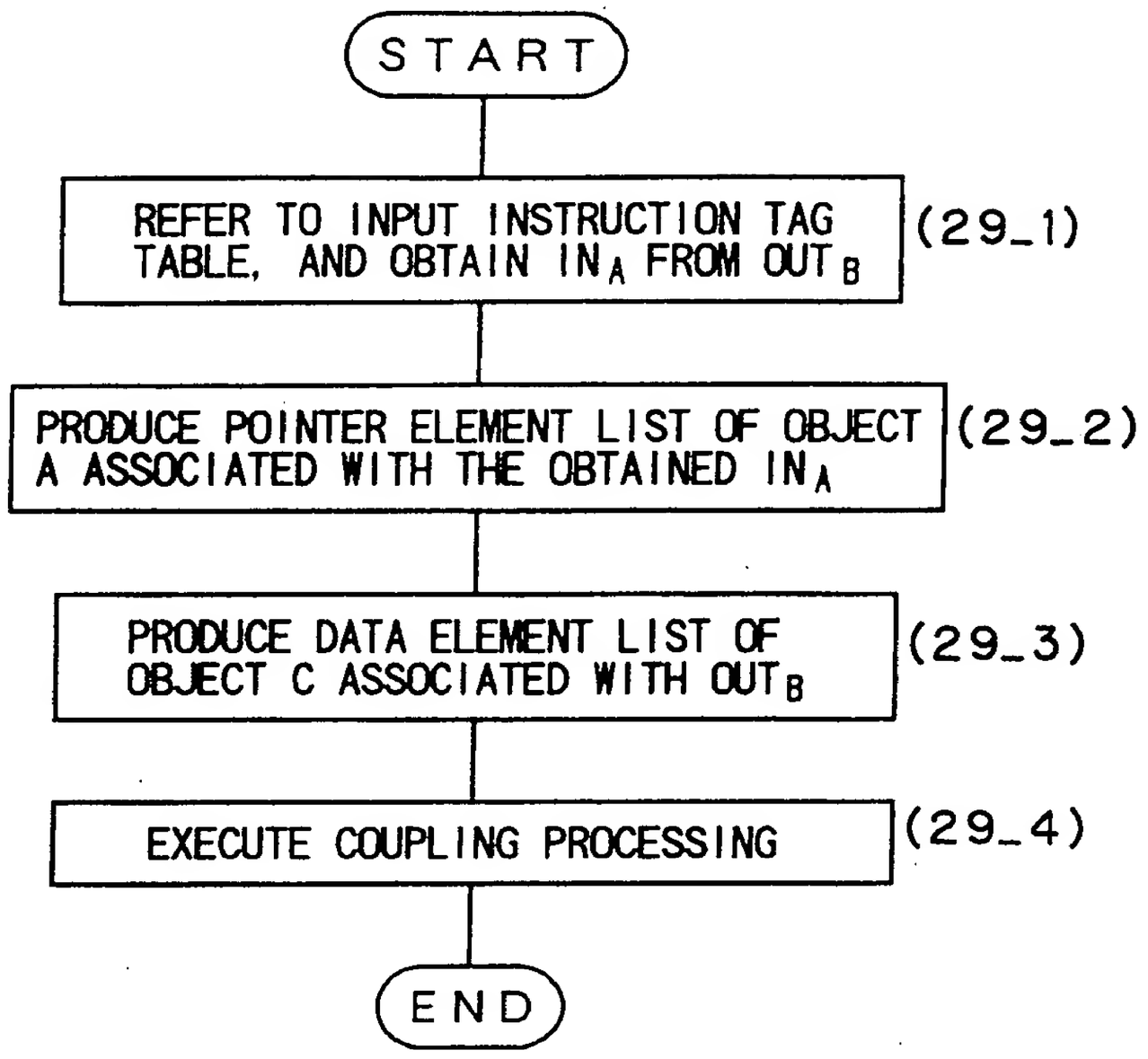
START
REFER TO INPUT INSTRUCTION TAG TABLE, AND OBTAIN IN_A FROM OUT_B
(29_1)
PRODUCE POINTER ELEMENT LIST OF OBJECT A ASSOCIATED WITH THE OBTAINED IN_A
(29_2)
PRODUCE DATA ELEMENT LIST OF OBJECT C ASSOCIATED WITH OUT_B
(29_3)
EXECUTE COUPLING PROCESSING
(29_4)
END

Fig. 30

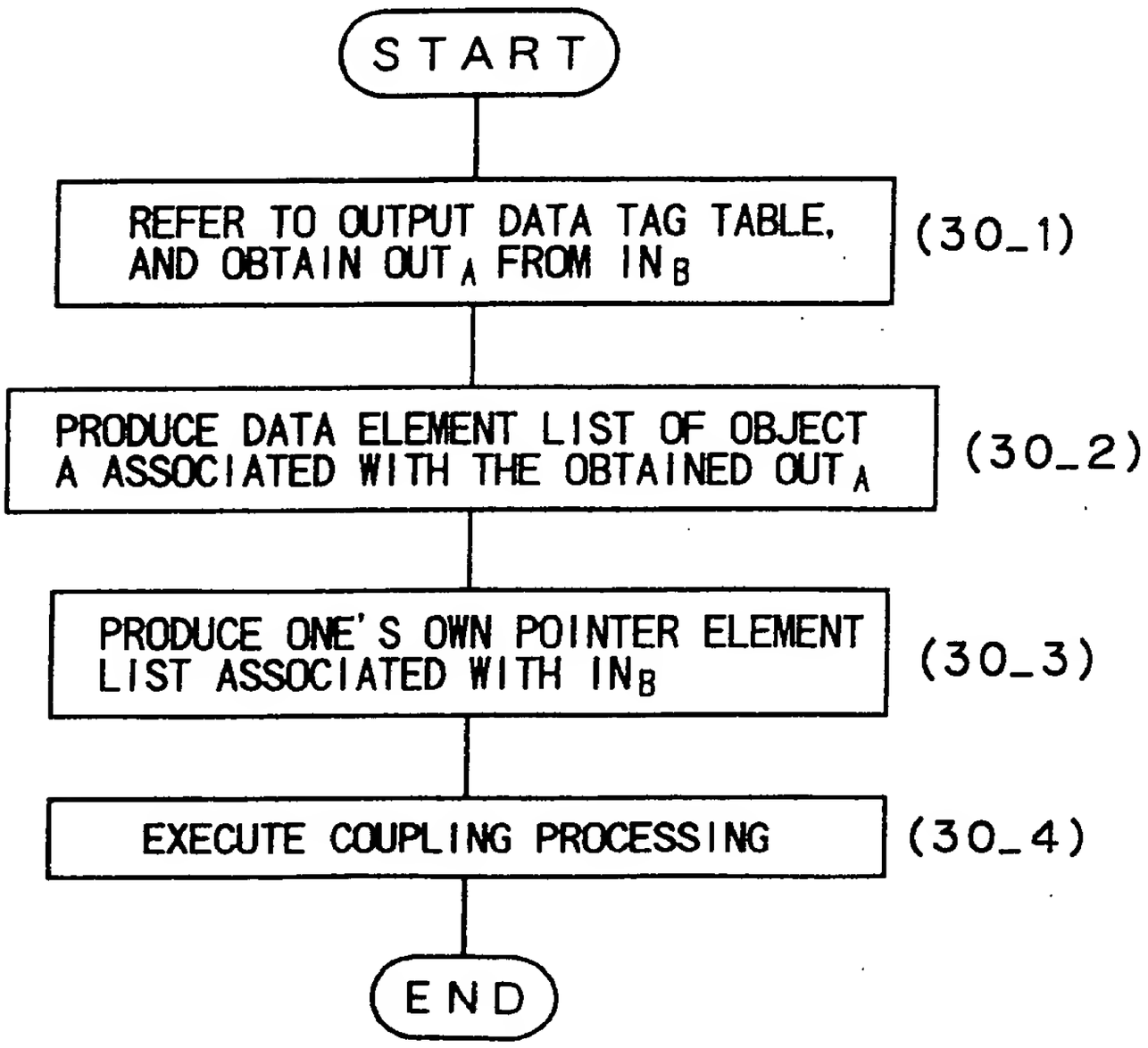
START
REFER TO OUTPUT DATA TAG TABLE, AND OBTAIN OUT_A FROM IN_B
(30_1)
PRODUCE DATA ELEMENT LIST OF OBJECT A ASSOCIATED WITH THE OBTAINED OUT_A
(30_2)
PRODUCE ONE'S OWN POINTER ELEMENT LIST ASSOCIATED WITH IN_B
(30_3)
EXECUTE COUPLING PROCESSING
(30_4)
END

Fig. 31

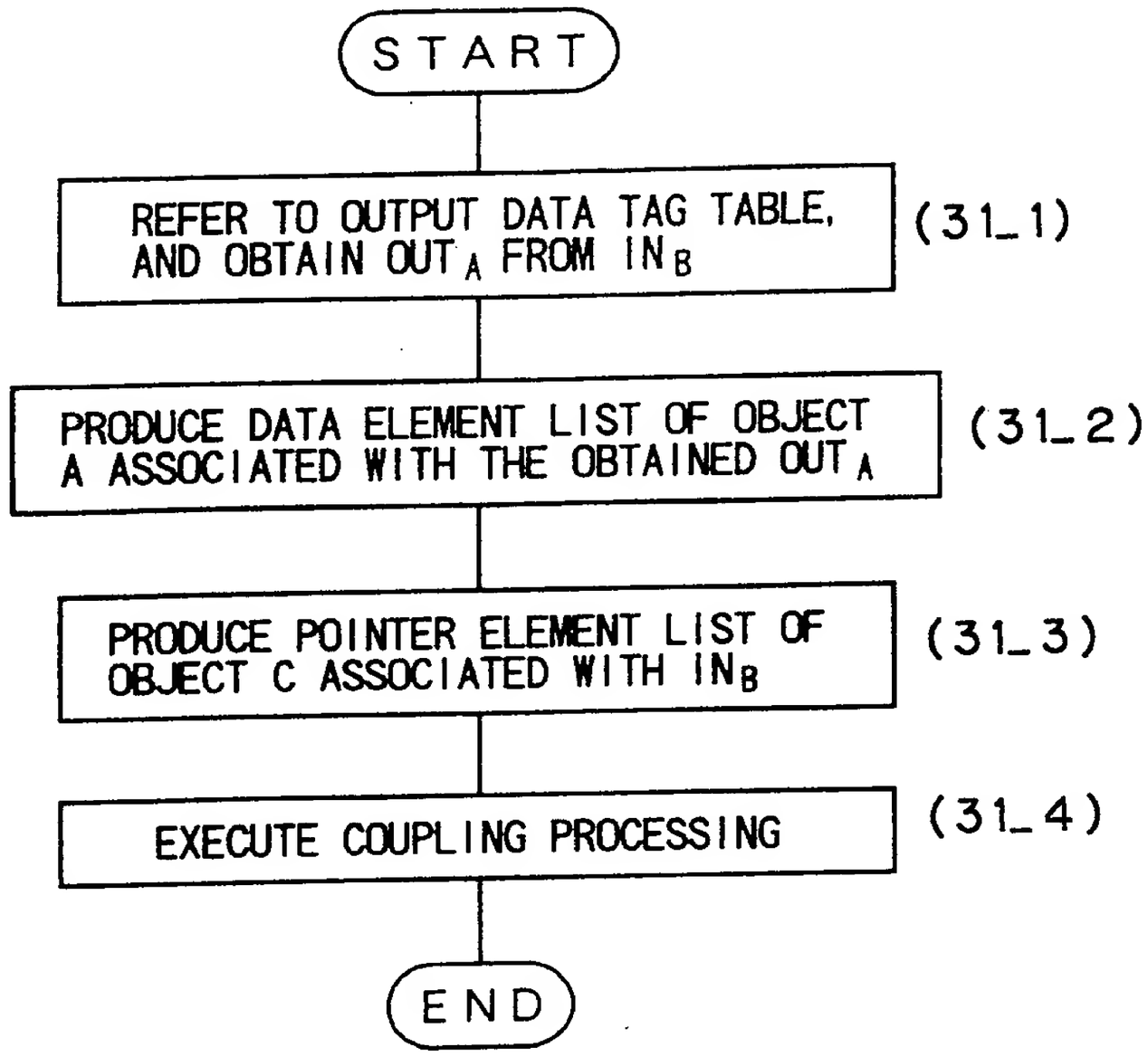

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Fig. 32

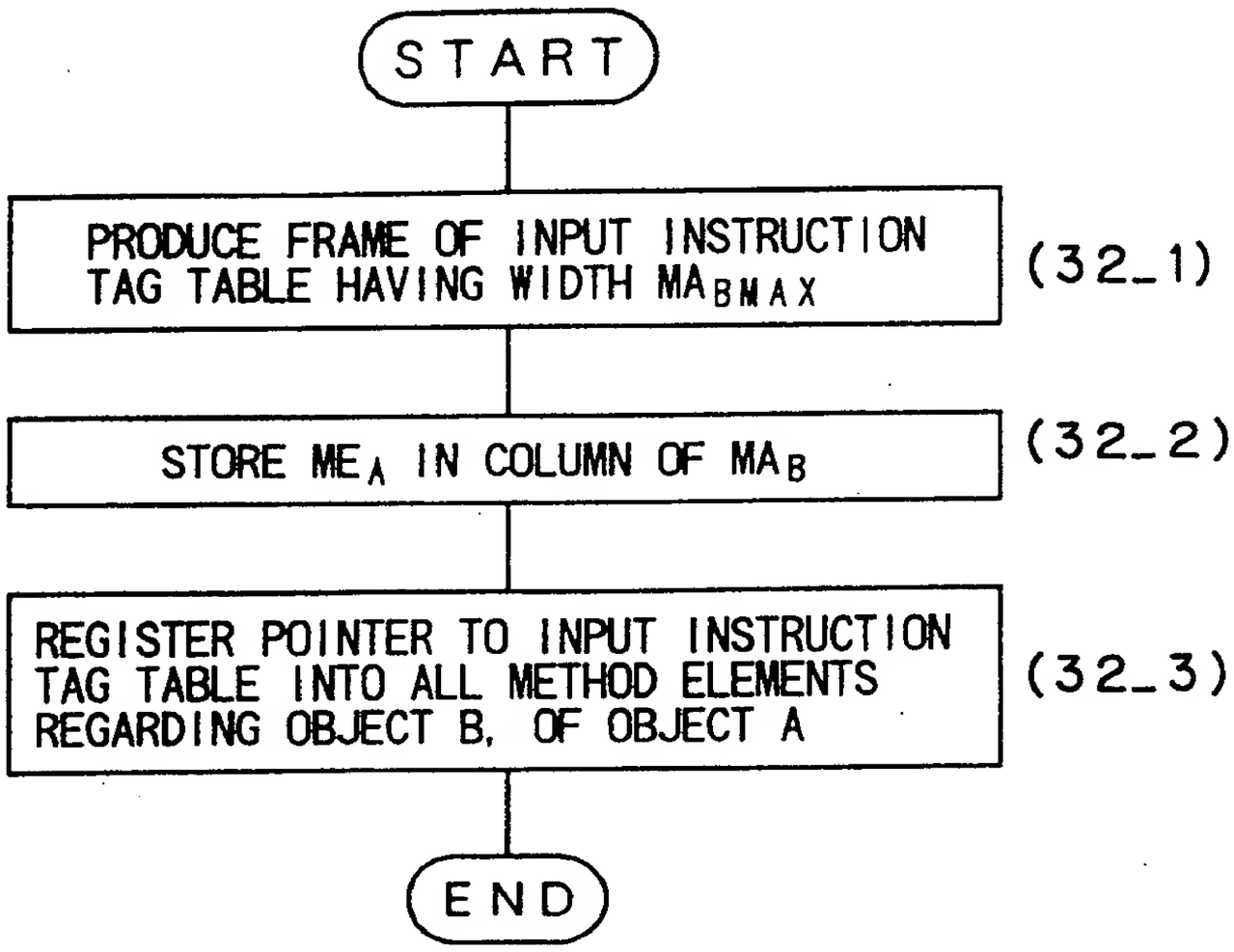

Fig. 33

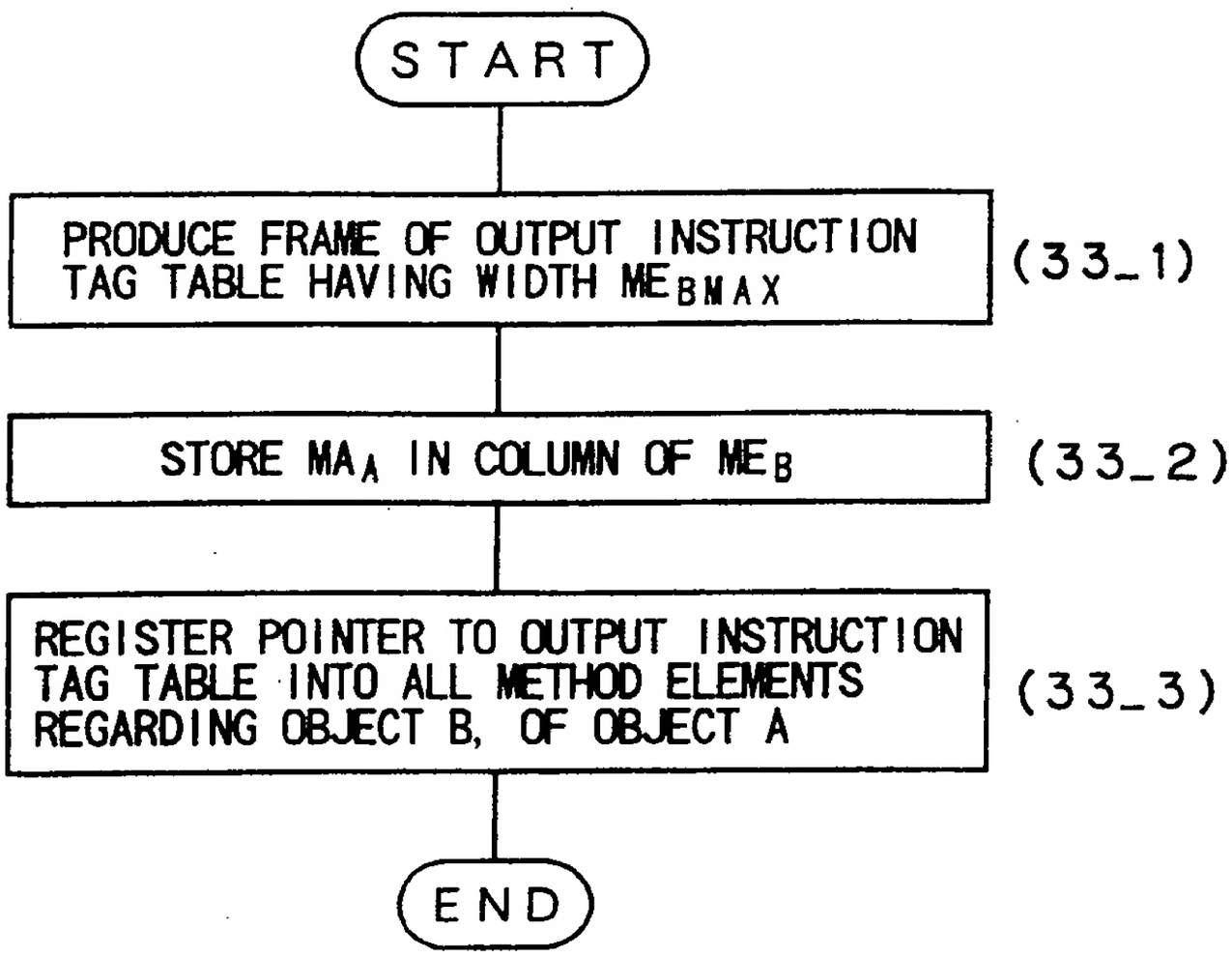

Fig. 34

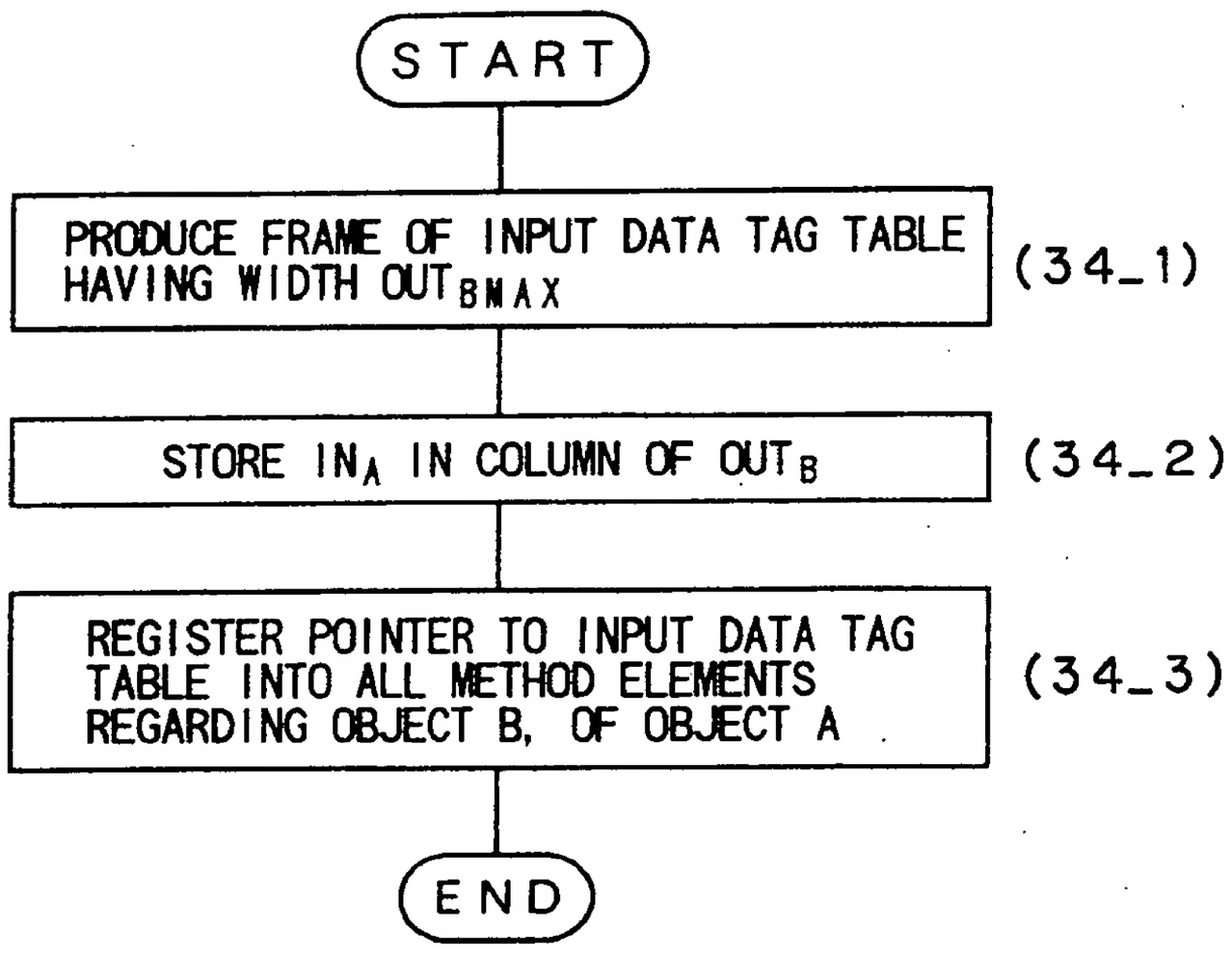

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Fig. 35

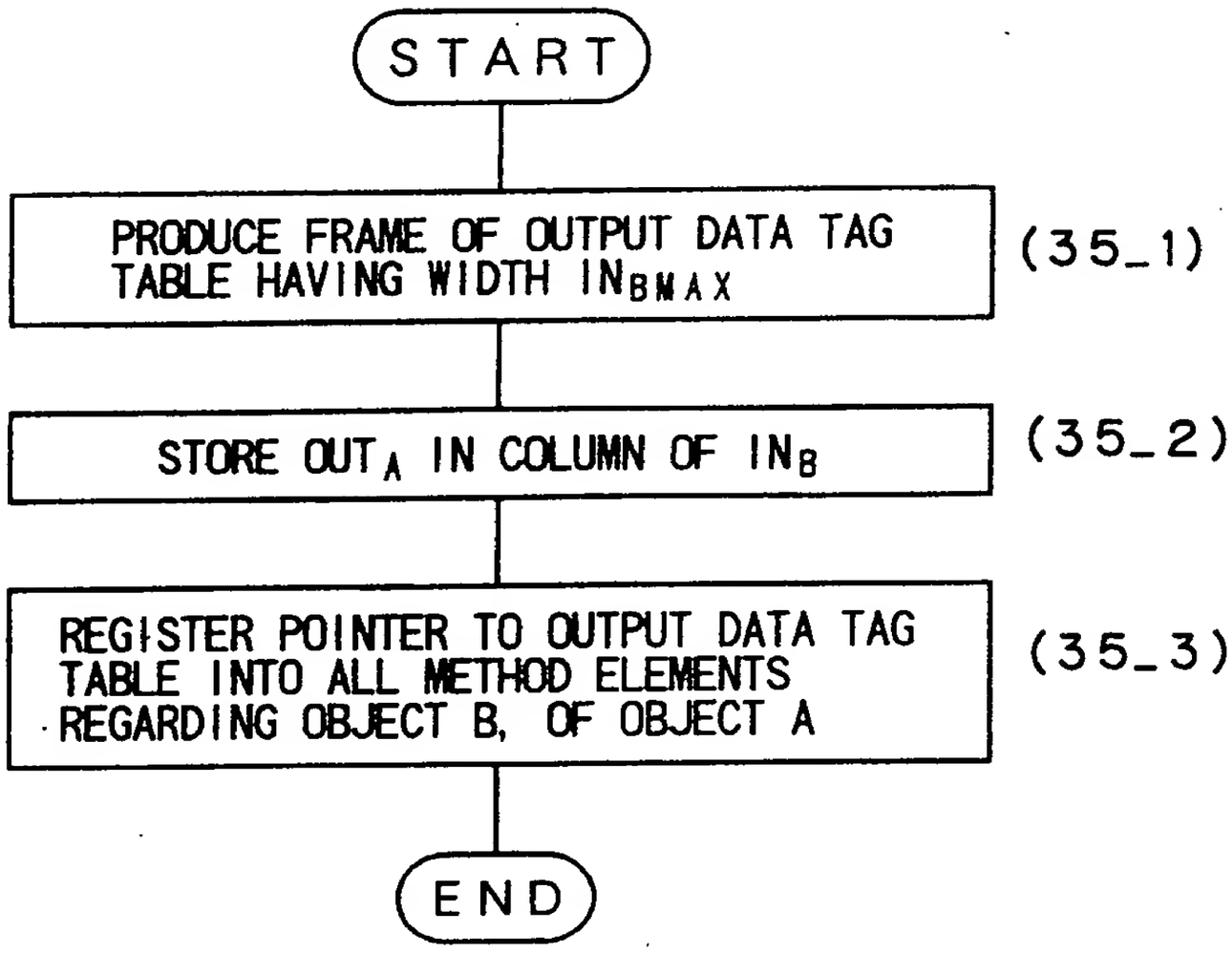

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Fig. 36

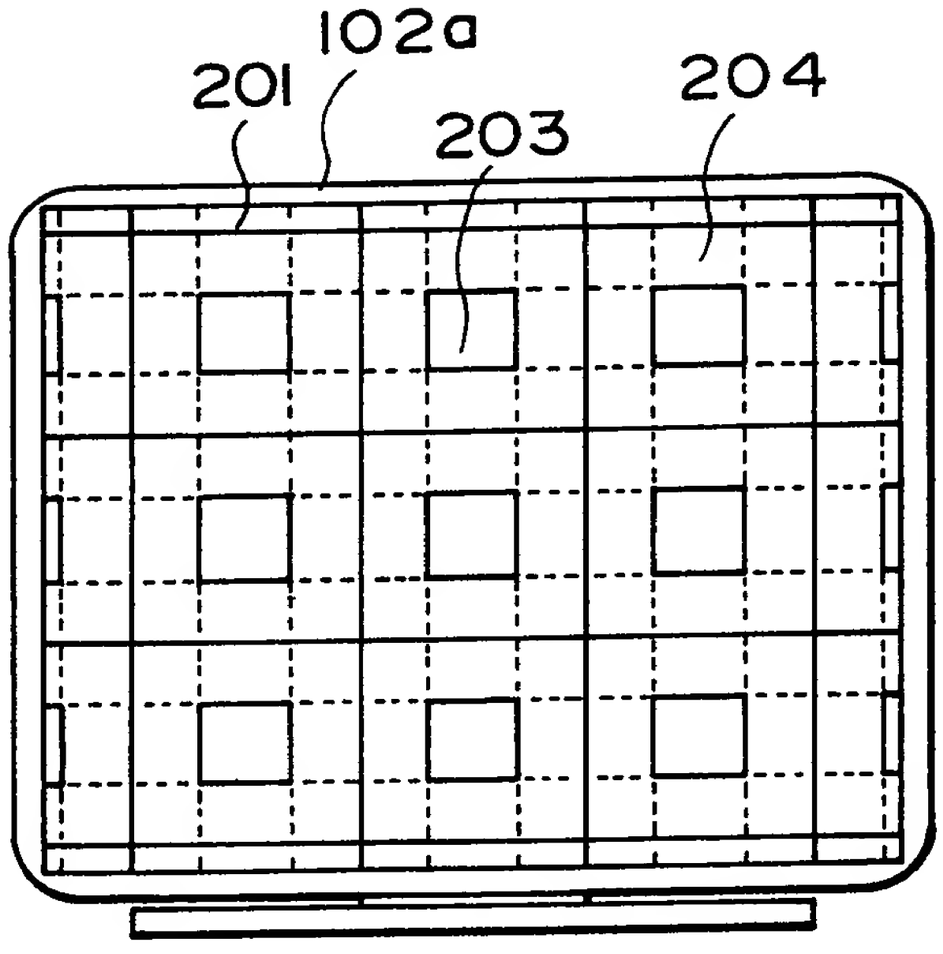

Fig. 37

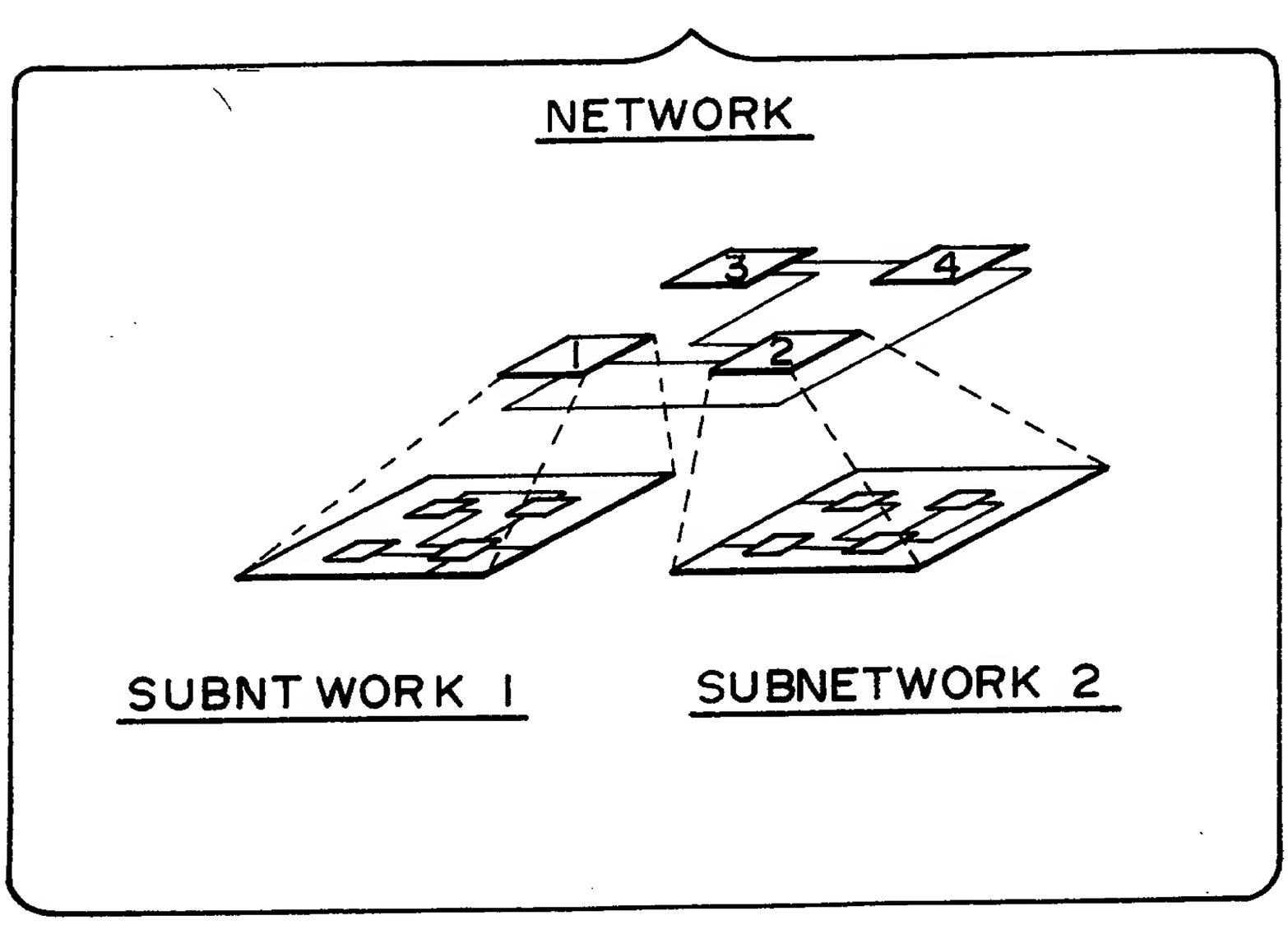

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Fig.38(A)

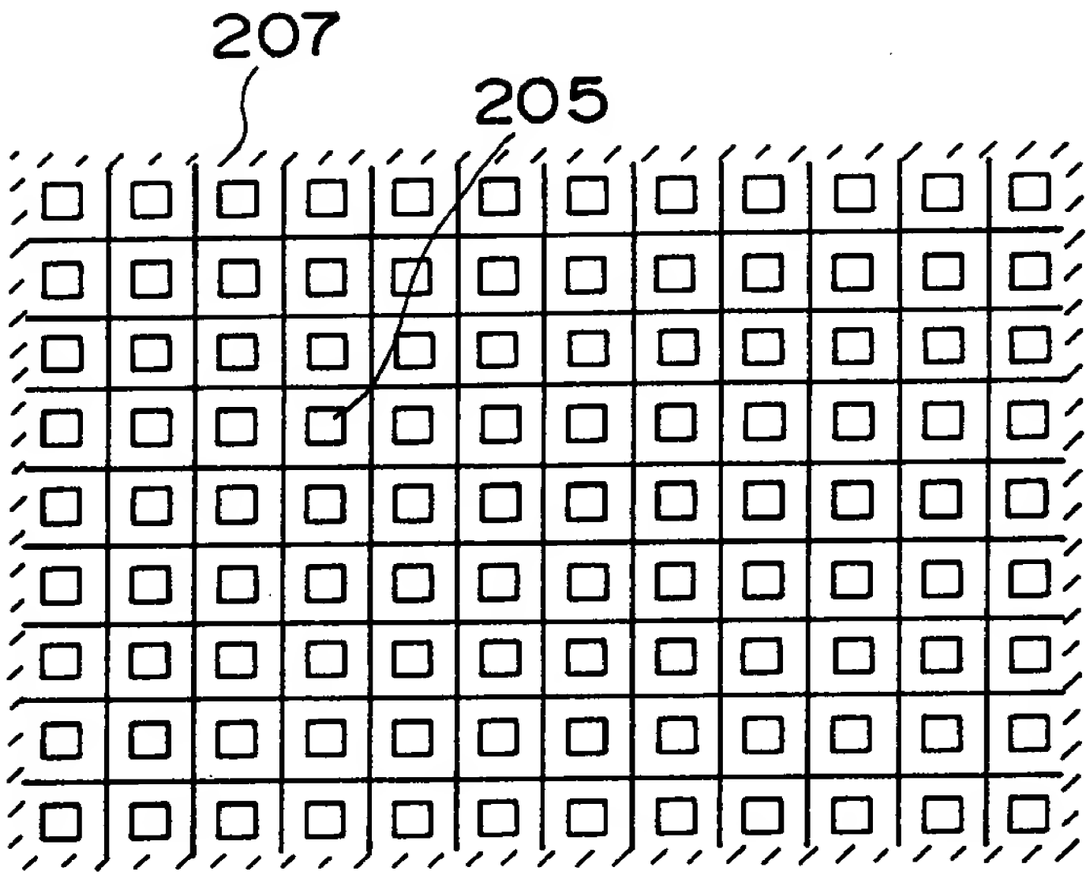

Fig.38(B)

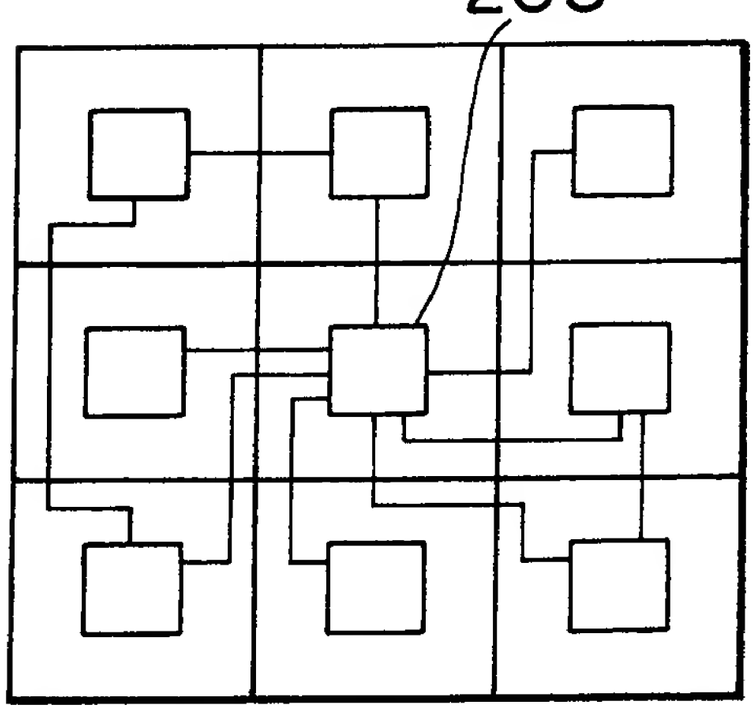

Fig.39(A)

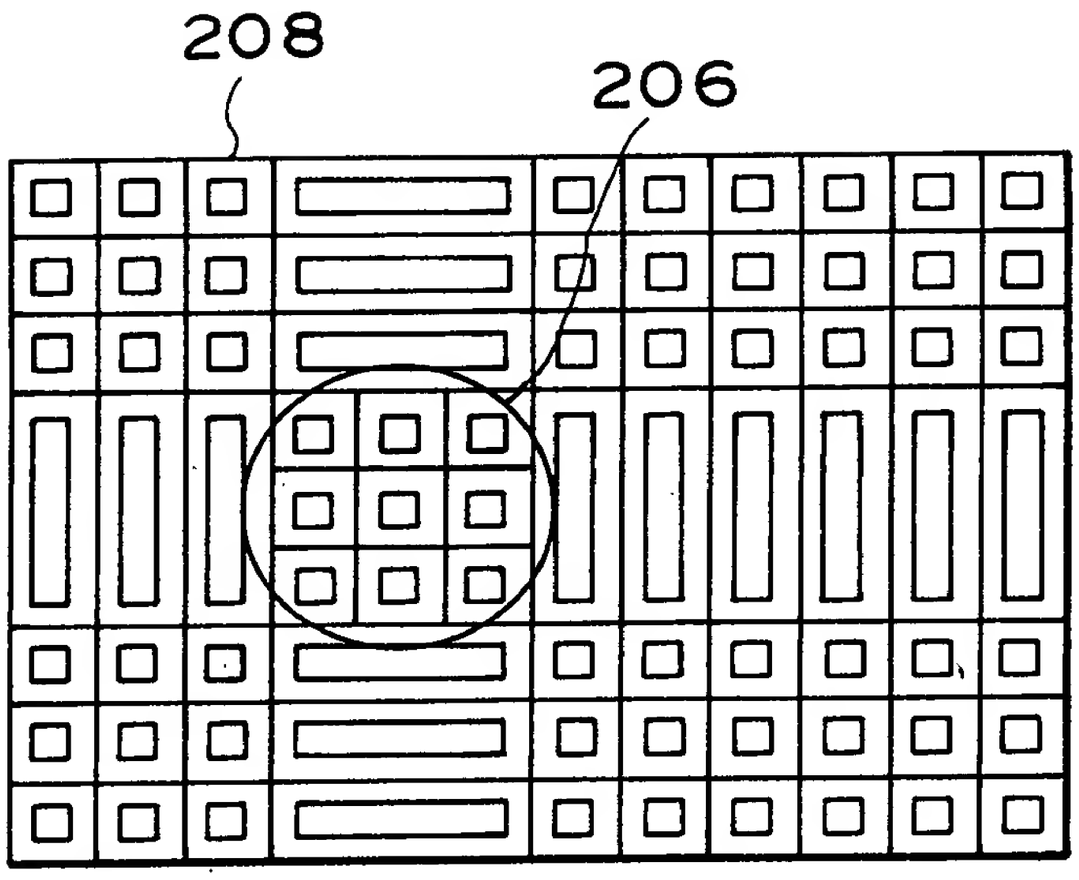

Fig.39(B)

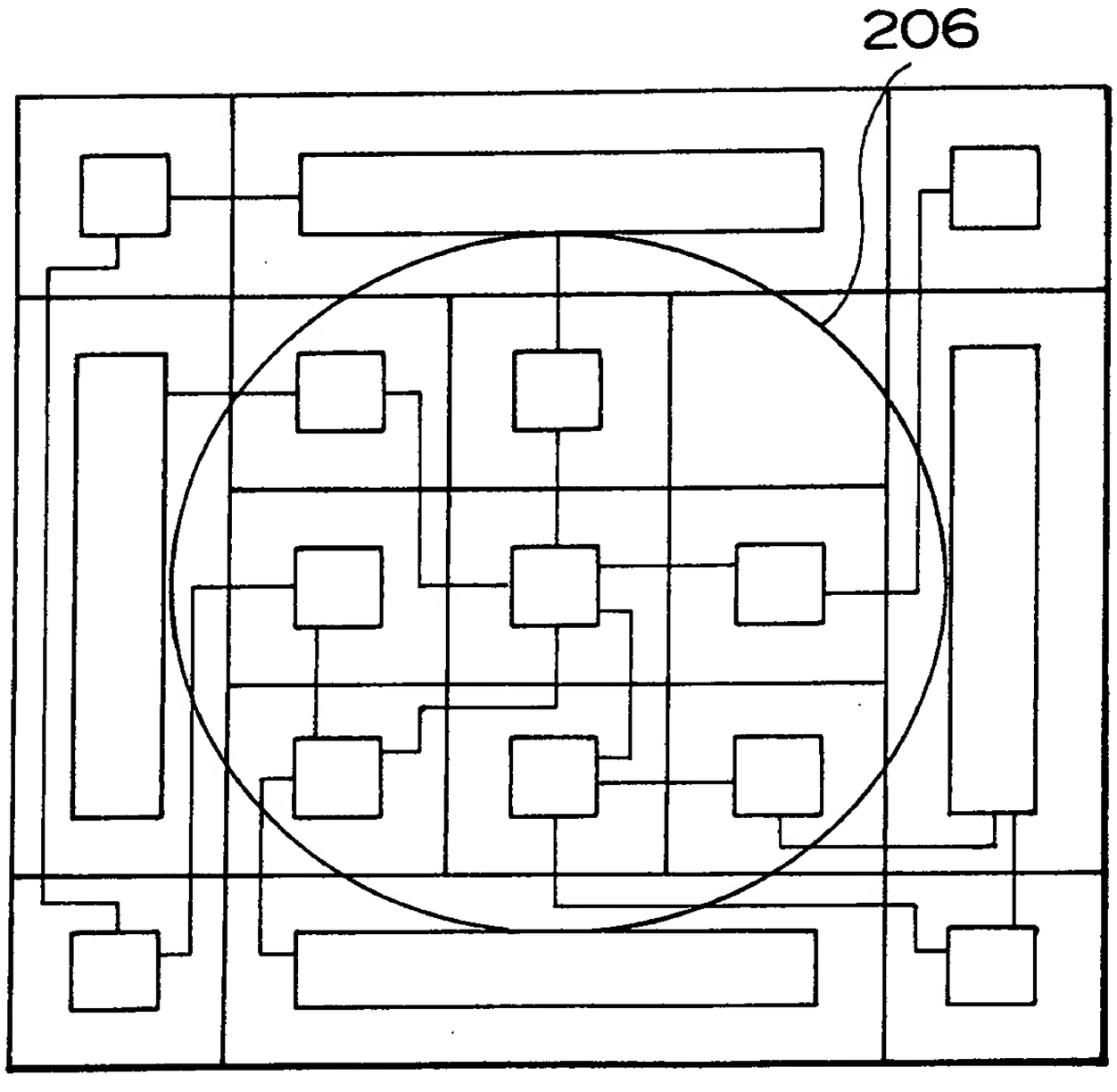

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Fig.40(A)

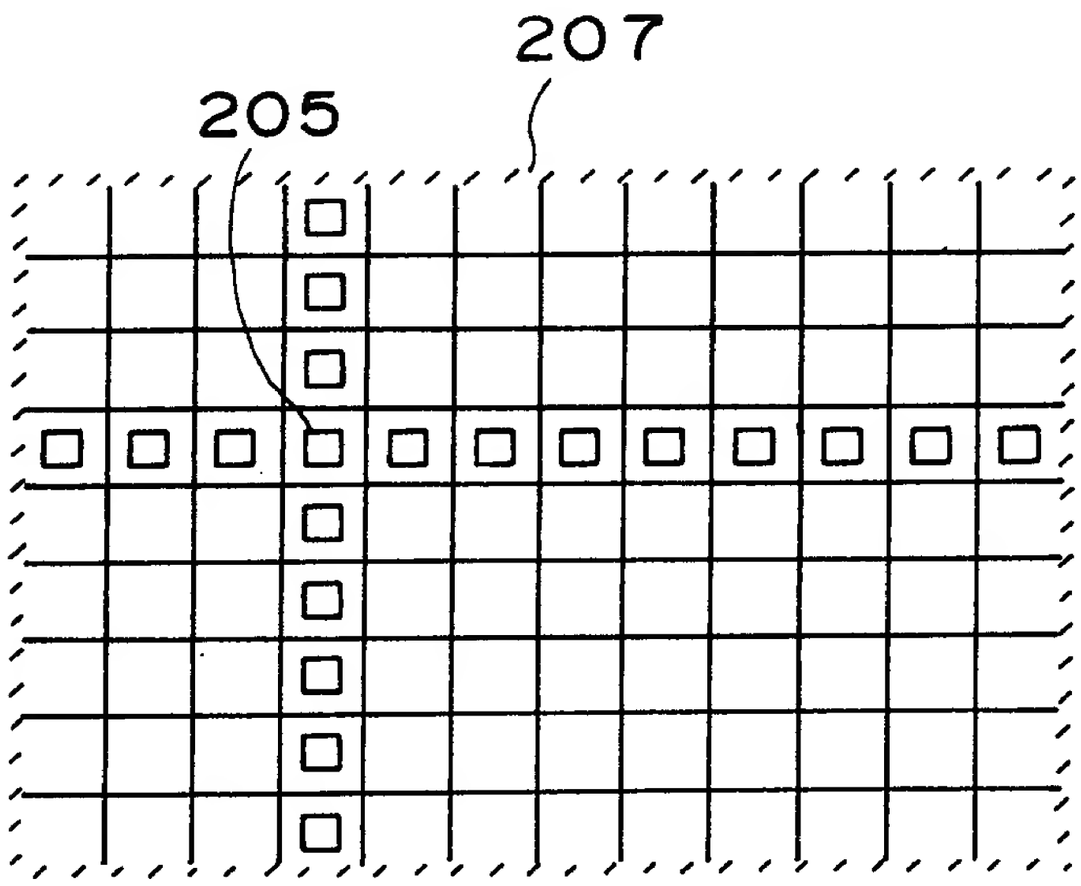

Fig.40(B)

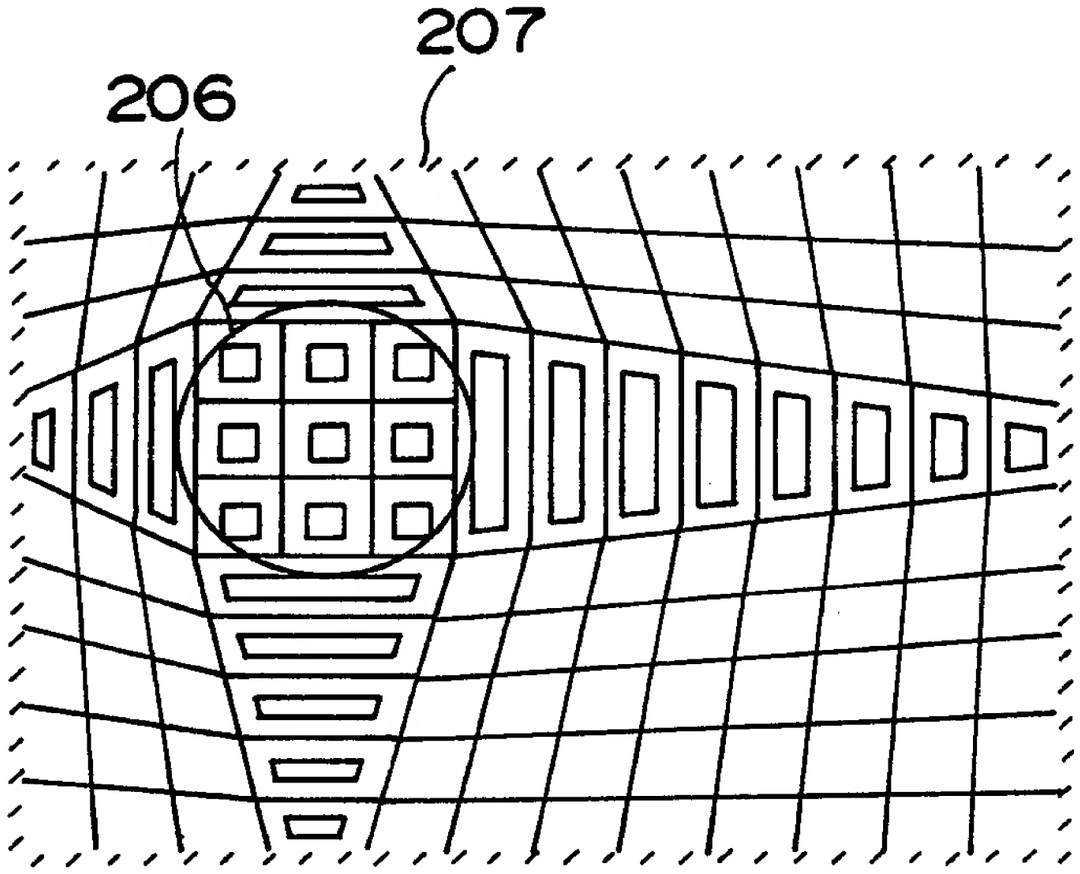

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Fig. 41(A)

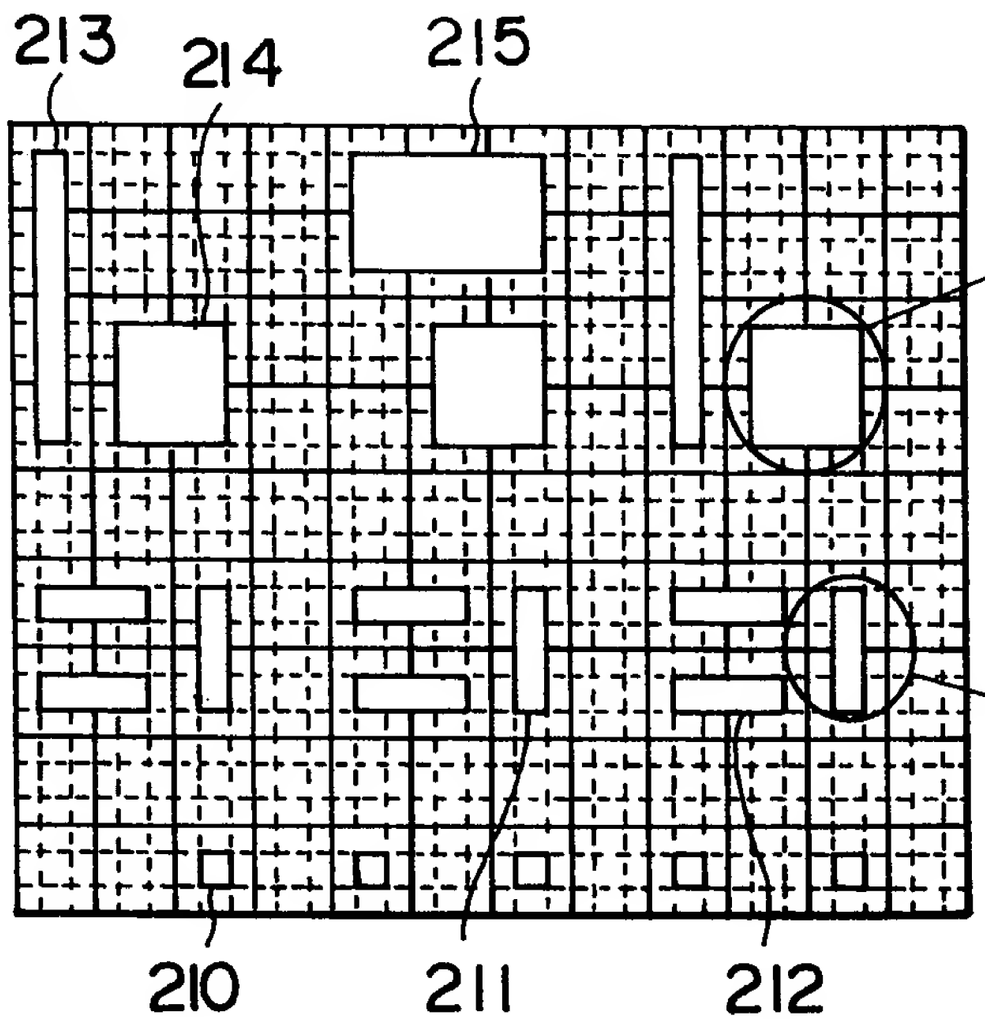

Fig. 41(B)

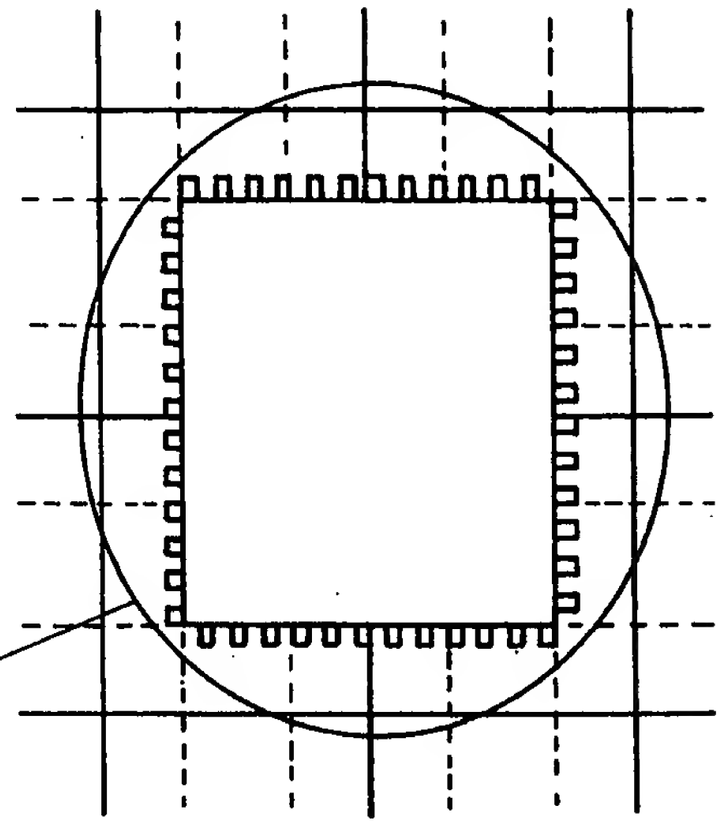

Fig. 41(C)

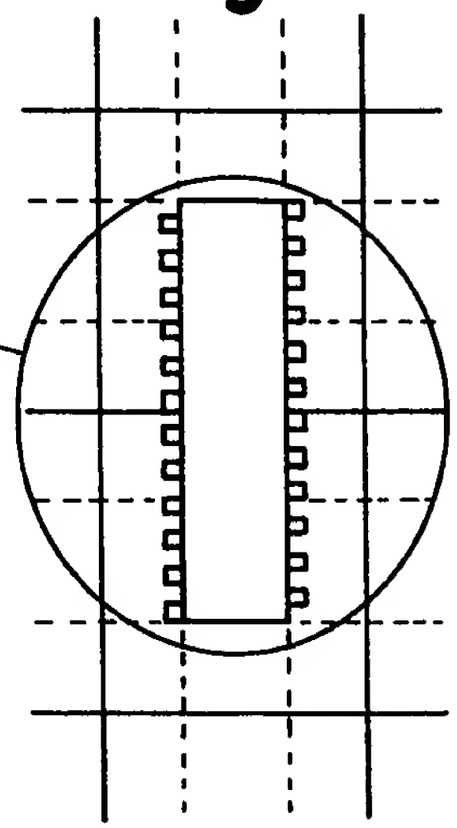

Fig. 42

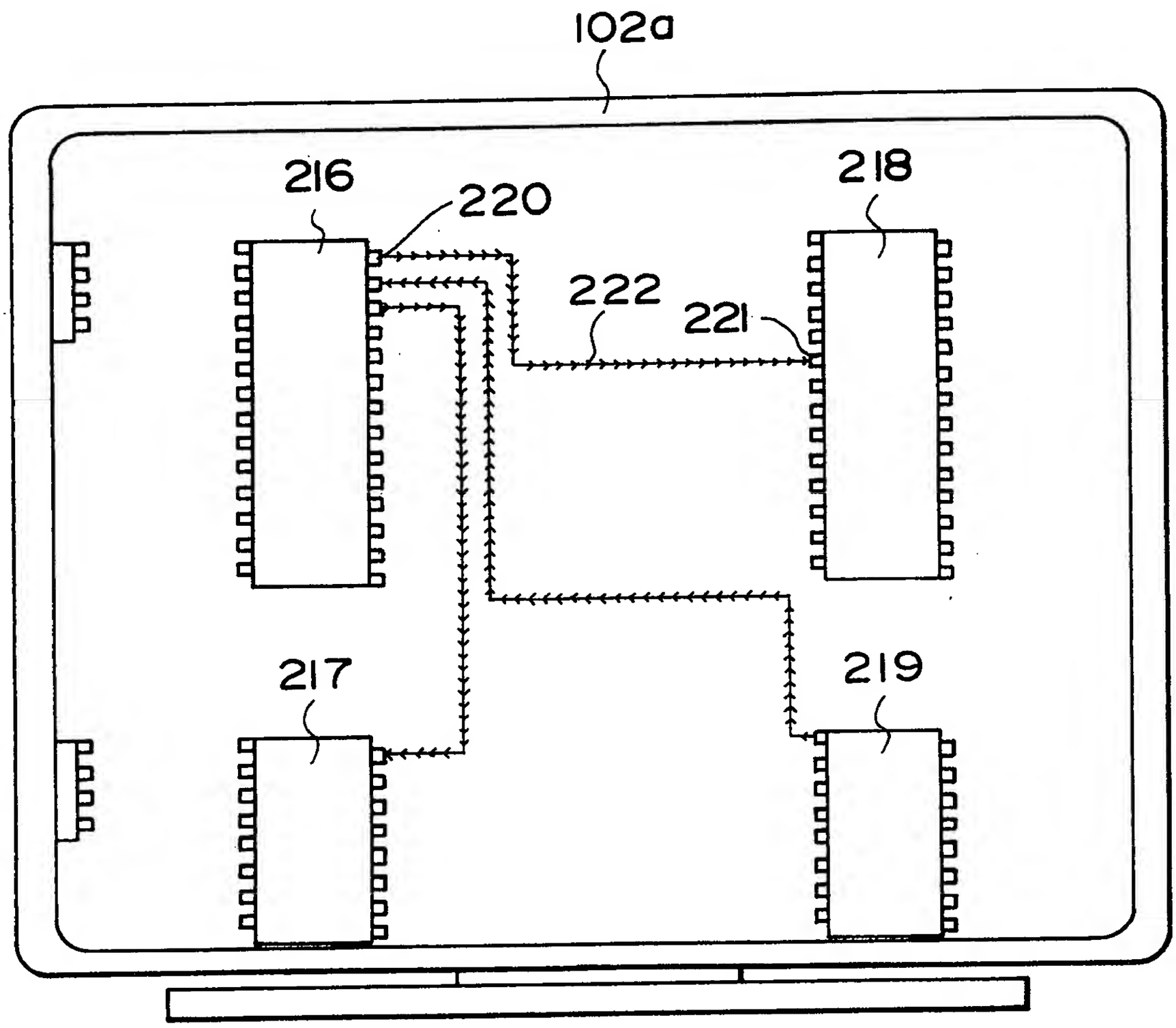

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Fig. 43(A)

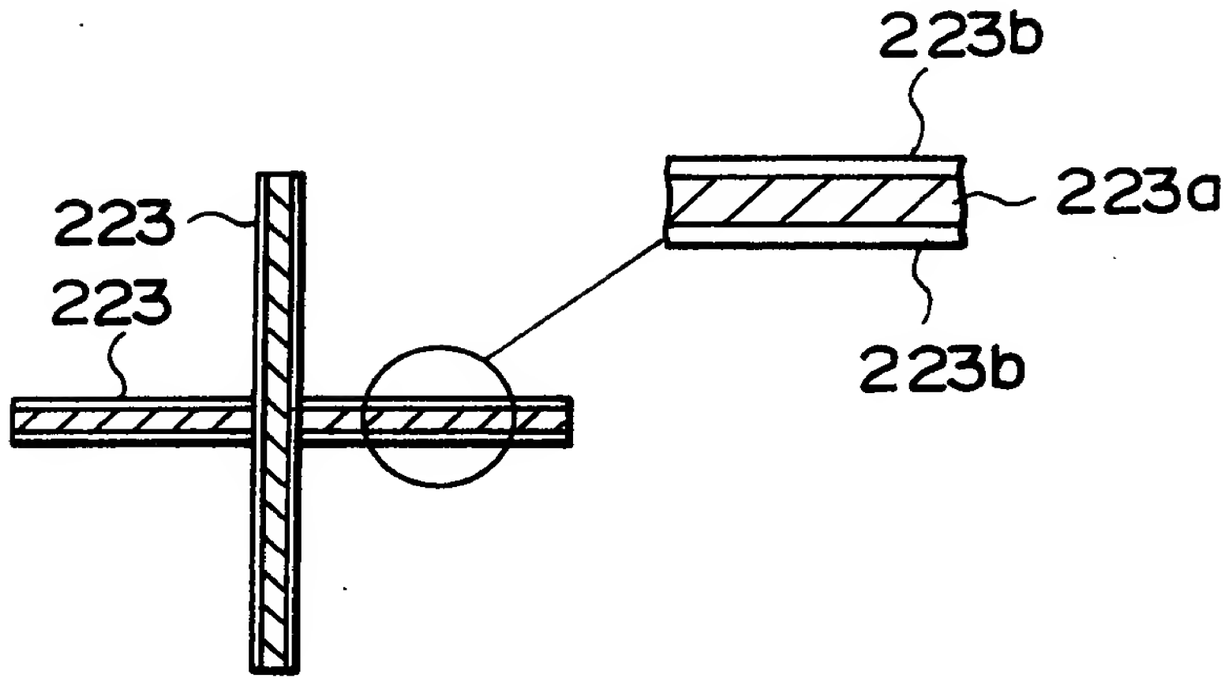

Fig. 43(B)

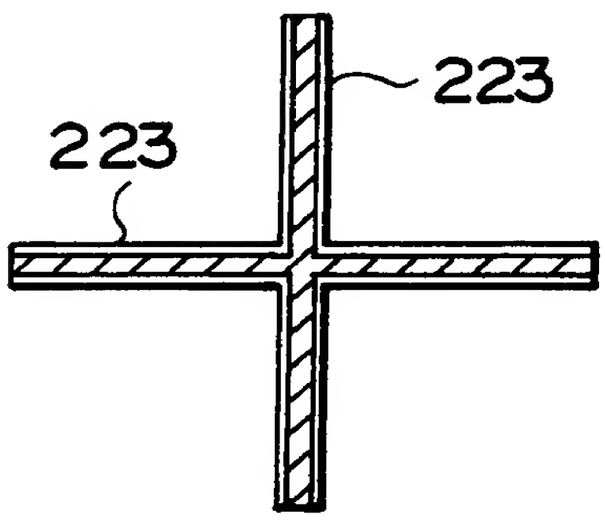

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Fig. 44 (A)

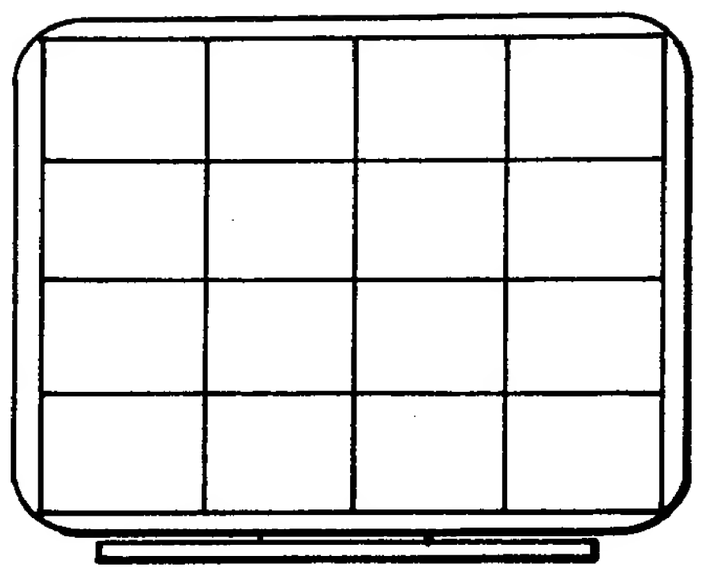

Fig. 44 (B)

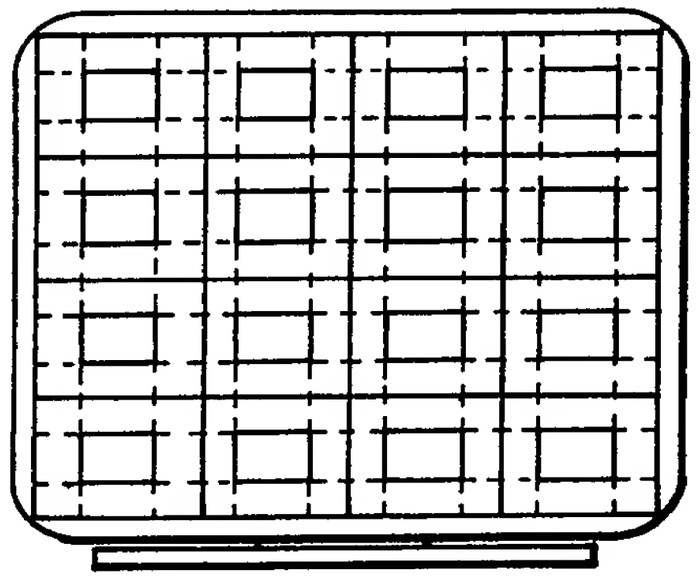

Fig. 44 (C)

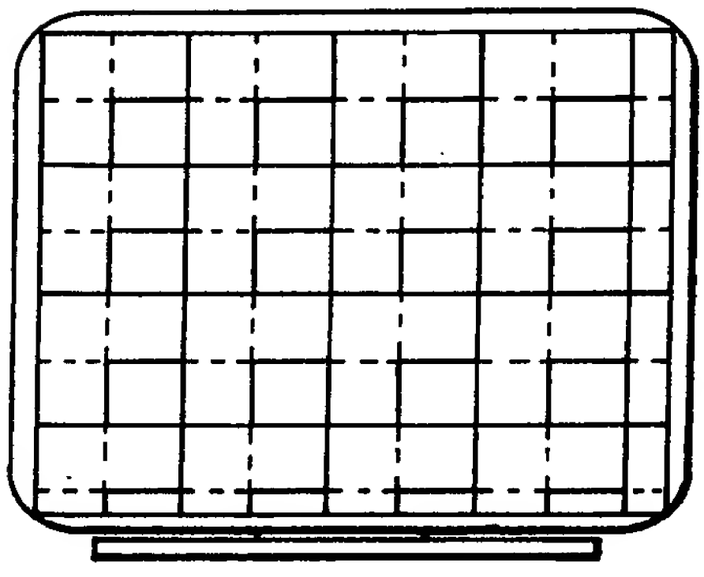

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Fig.45

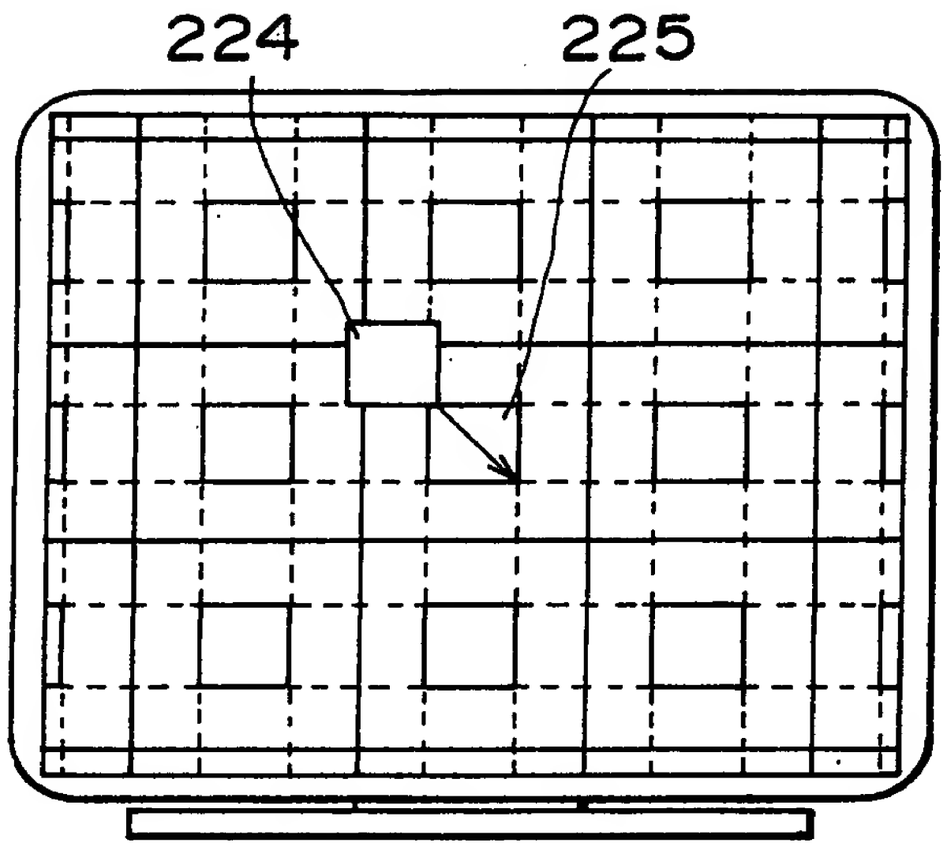

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Fig.46(A)

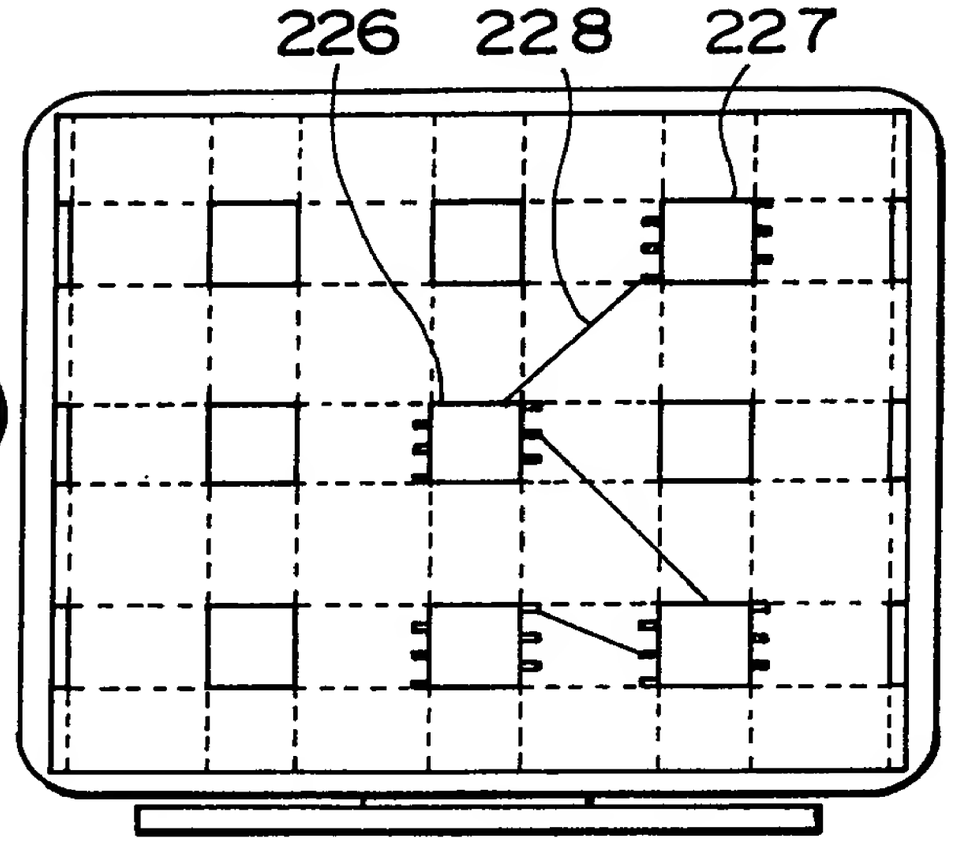

Fig.46(B)

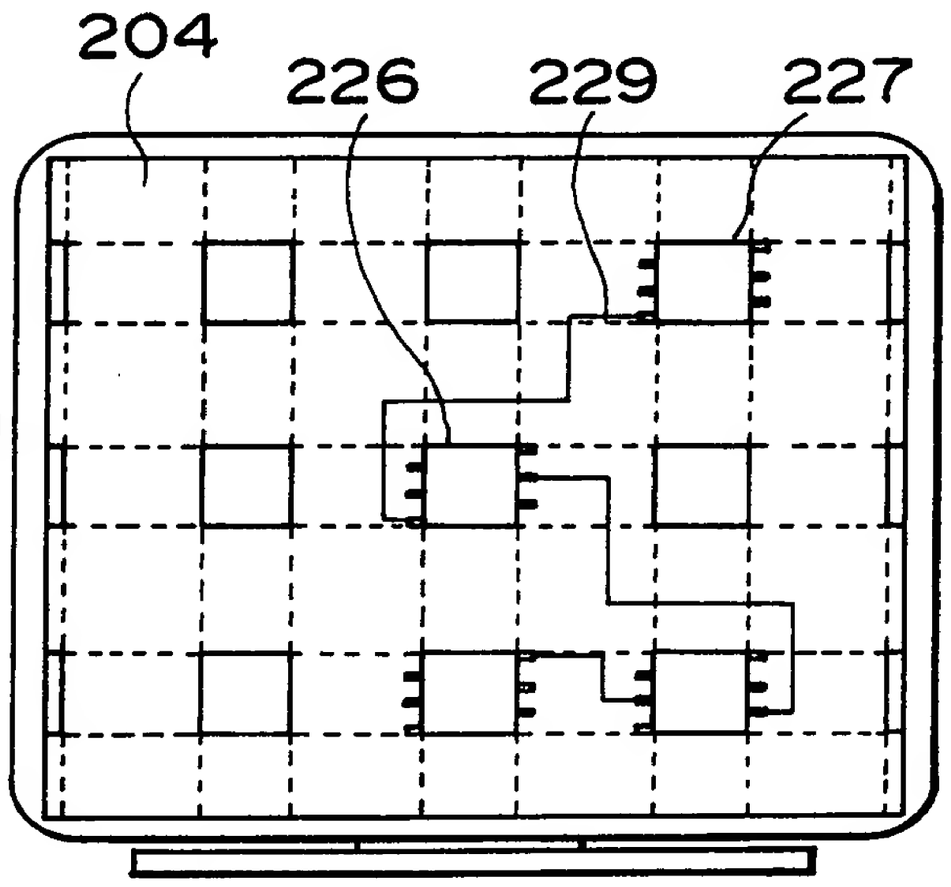

Fig.47 (A)

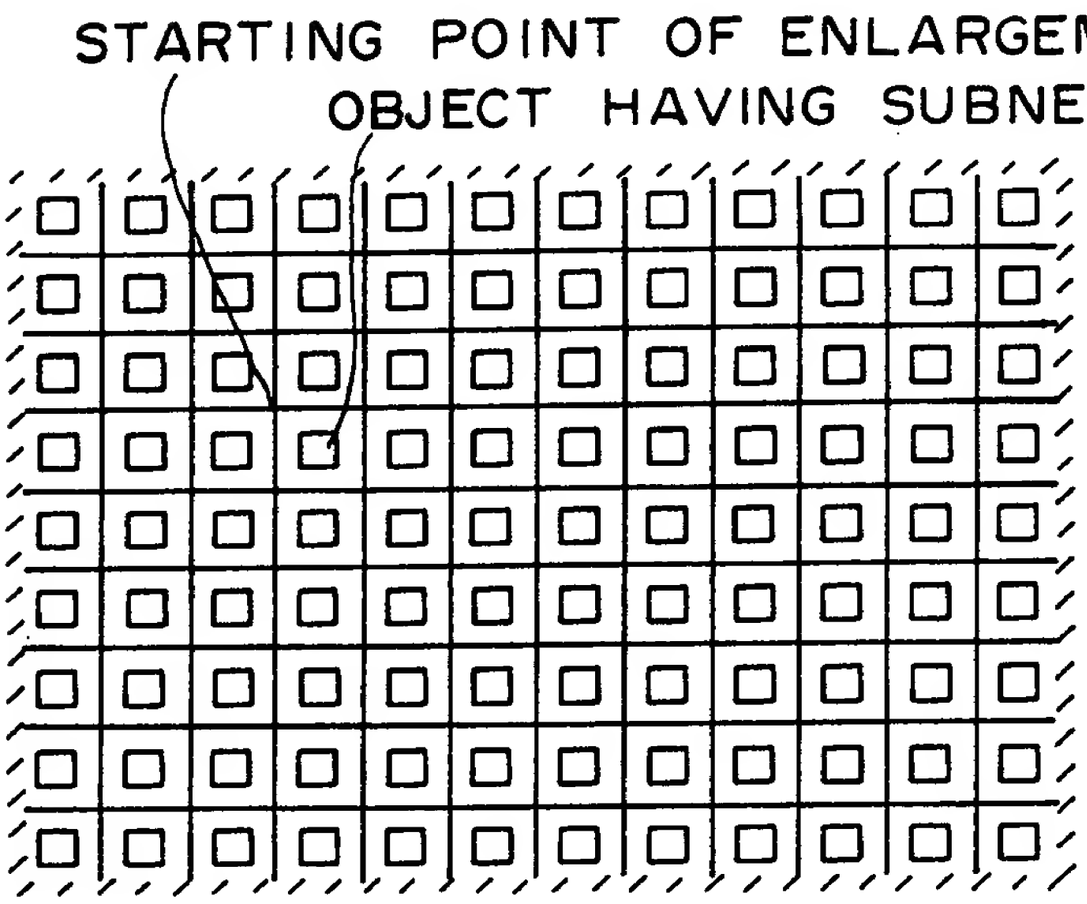

Fig.47 (B)

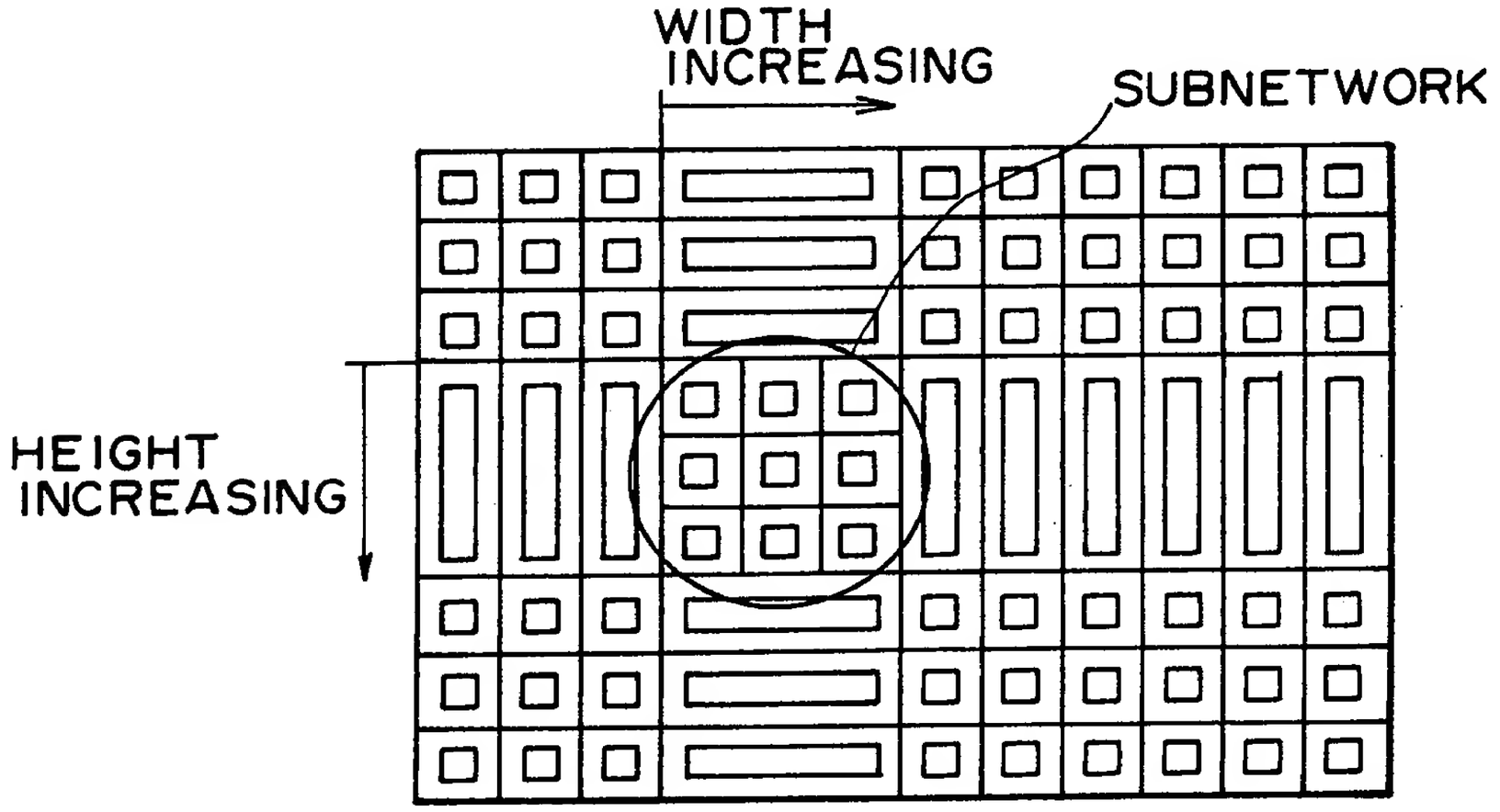

Fig. 48

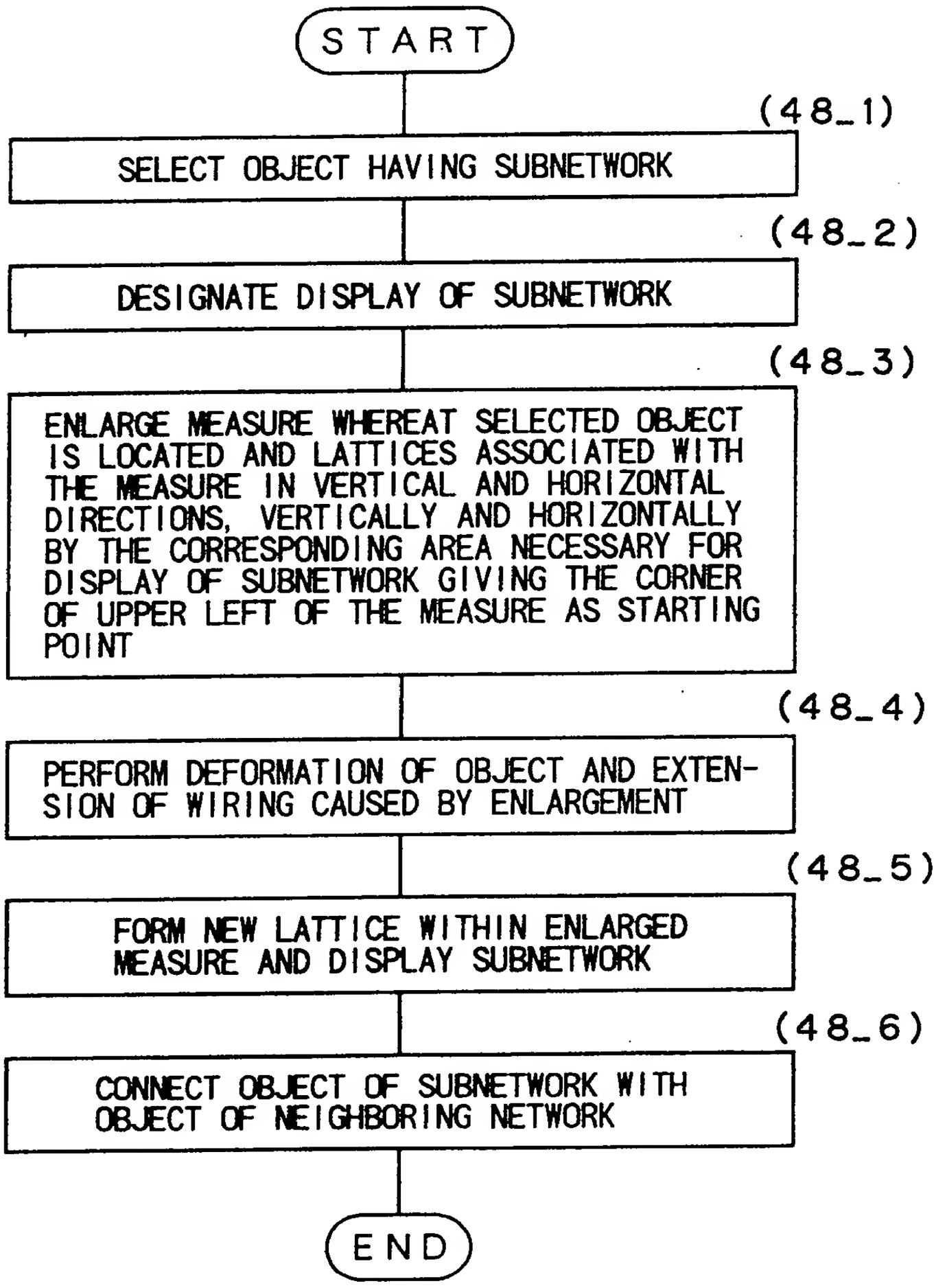
START
(48_1)
SELECT OBJECT HAVING SUBNETWORK
(48_2)
DESIGNATE DISPLAY OF SUBNETWORK
(48_3)
ENLARGE MEASURE WHEREAT SELECTED OBJECT IS LOCATED AND LATTICES ASSOCIATED WITH THE MEASURE IN VERTICAL AND HORIZONTAL DIRECTIONS, VERTICALLY AND HORIZONTALLY BY THE CORRESPONDING AREA NECESSARY FOR DISPLAY OF SUBNETWORK GIVING THE CORNER OF UPPER LEFT OF THE MEASURE AS STARTING POINT
(48_4)
PERFORM DEFORMATION OF OBJECT AND EXTENSION OF WIRING CAUSED BY ENLARGEMENT
(48_5)
FORM NEW LATTICE WITHIN ENLARGED MEASURE AND DISPLAY SUBNETWORK
(48_6)
CONNECT OBJECT OF SUBNETWORK WITH OBJECT OF NEIGHBORING NETWORK
END

Fig.49(A)

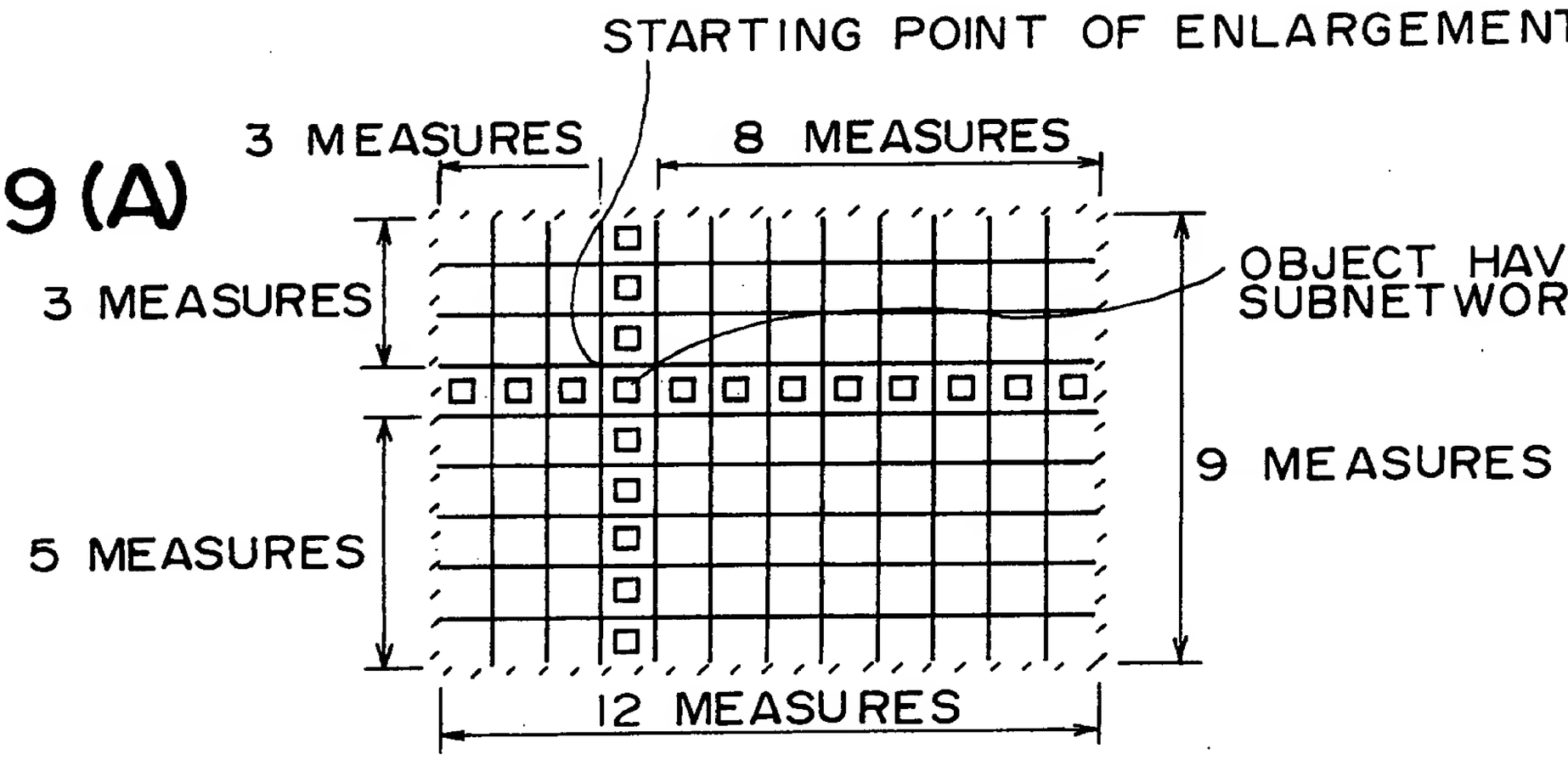

Fig.49(B)

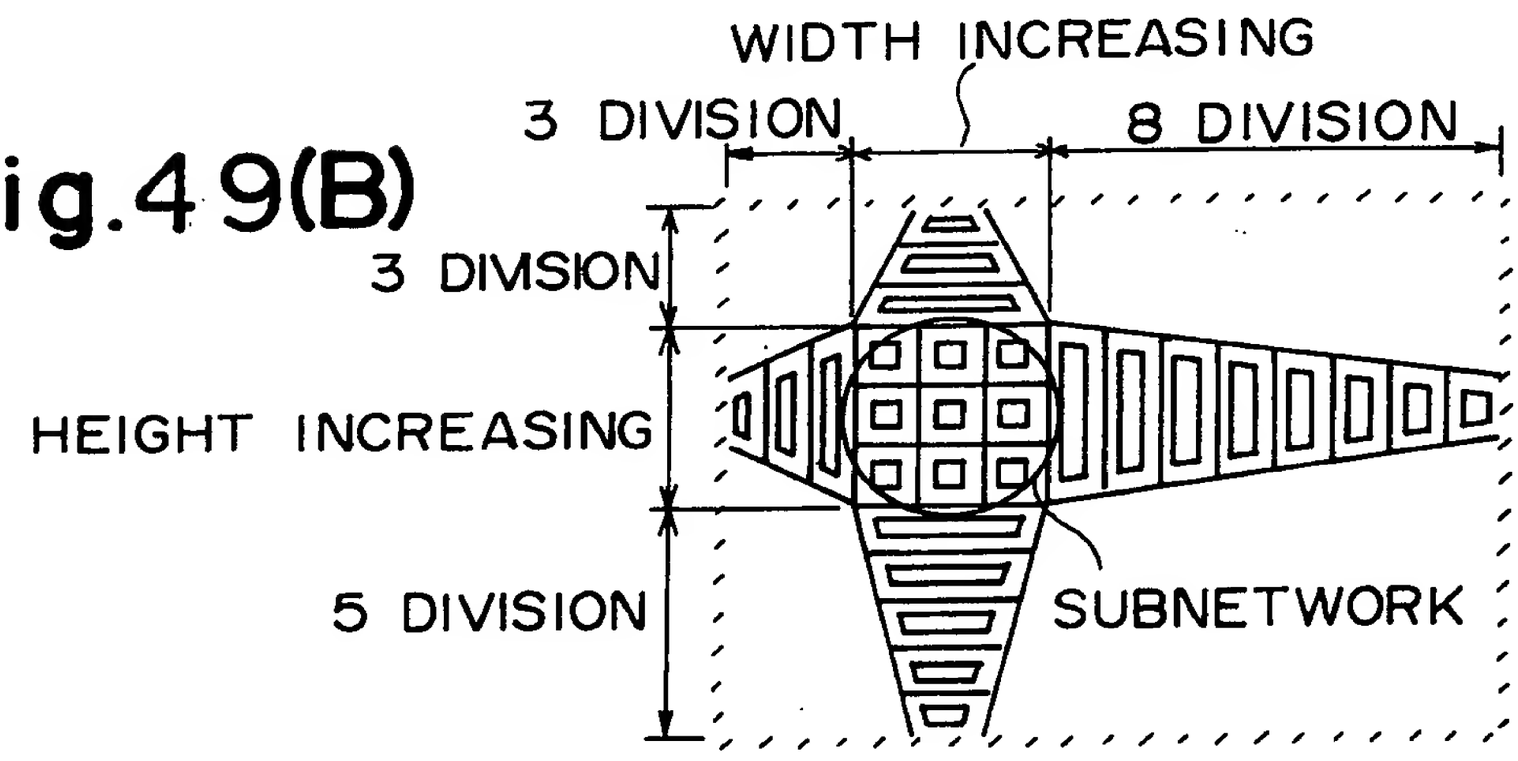

Fig.49(C)

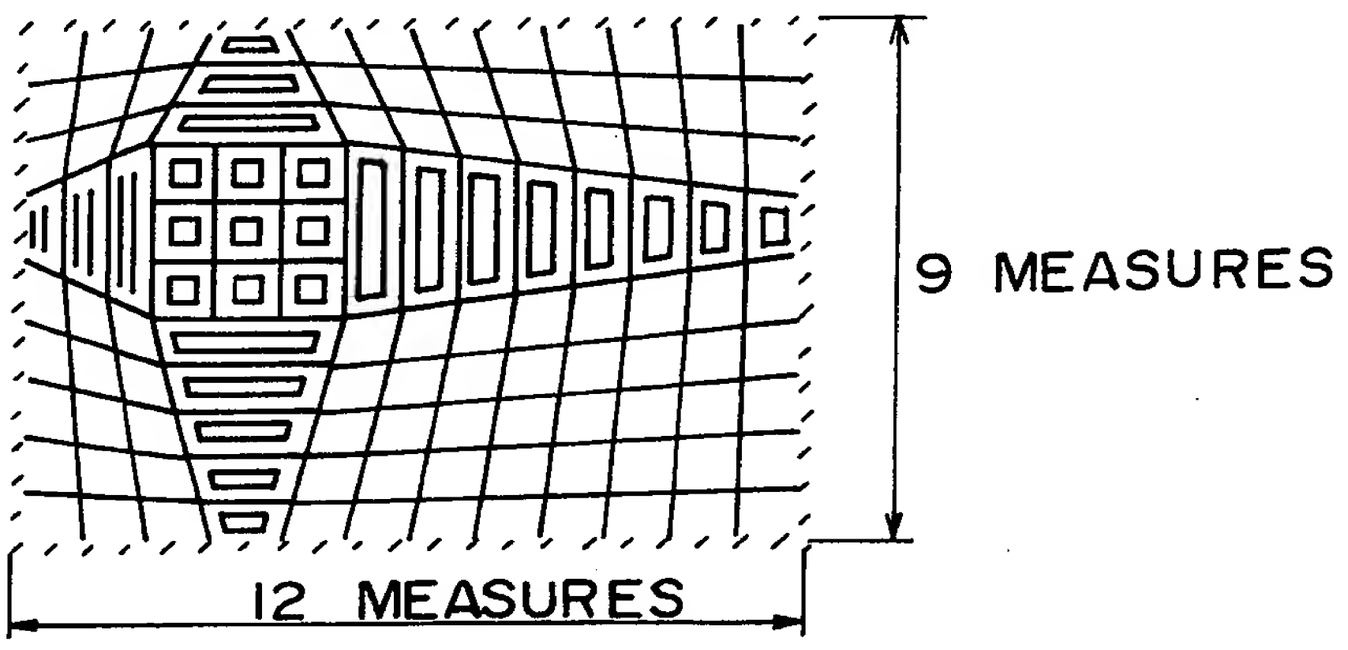

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Fig.50

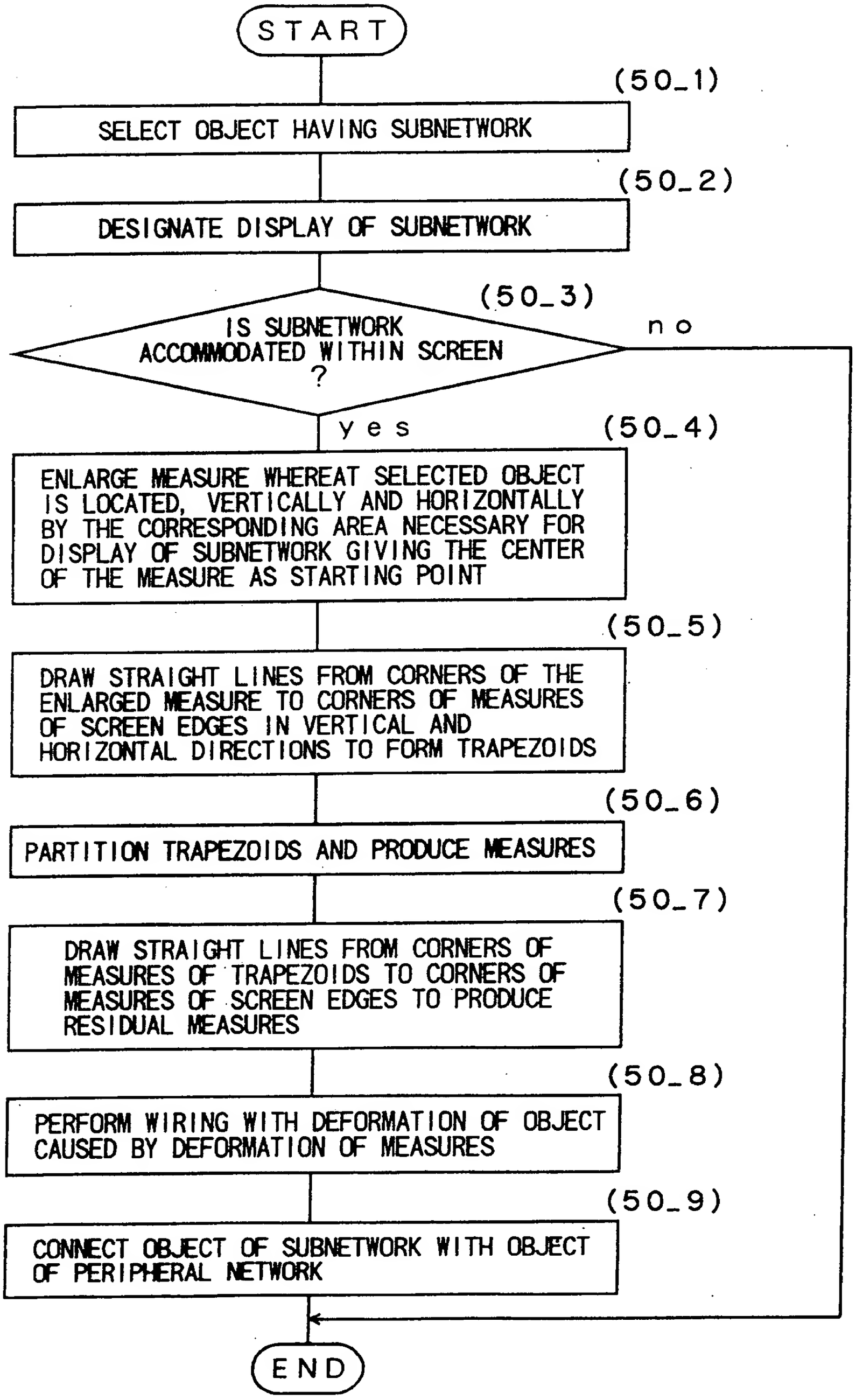

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Fig.51(A)

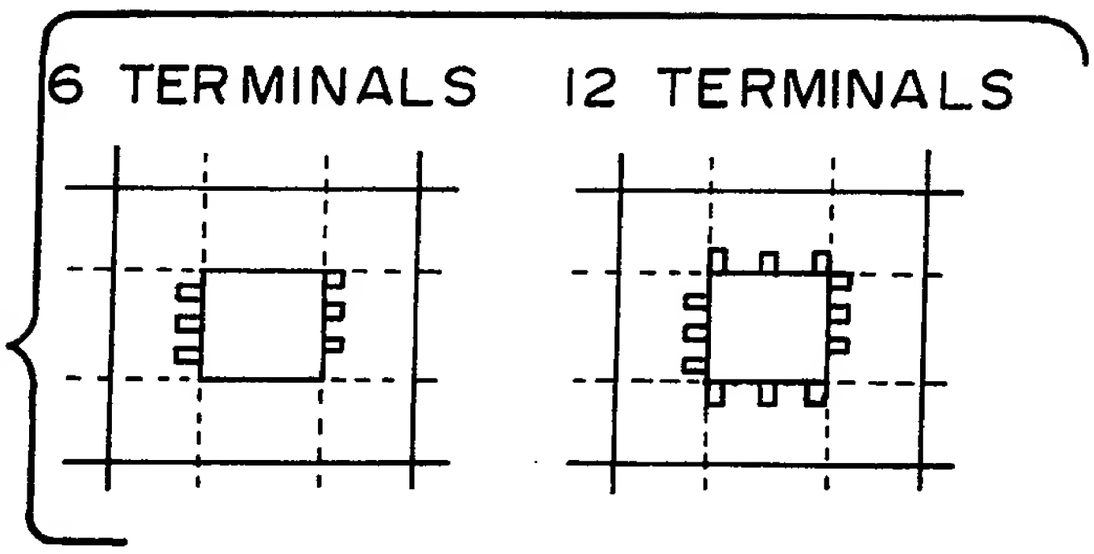

Fig.51(B)

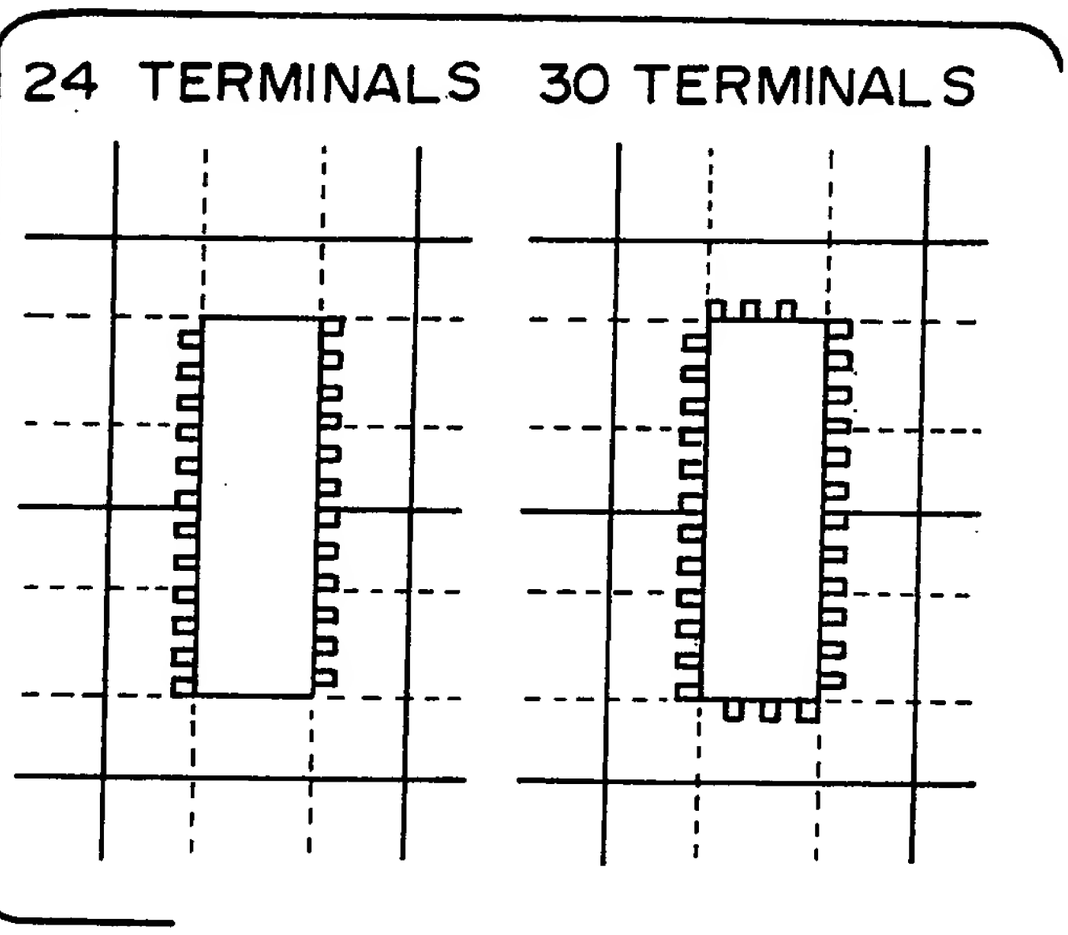

Fig.51(C)

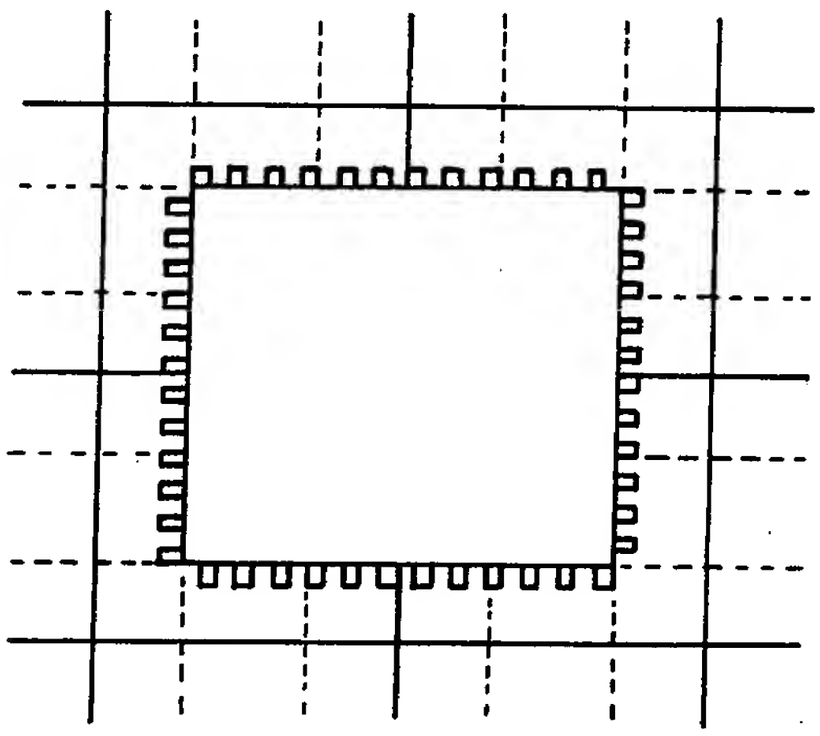

Fig.52(A)

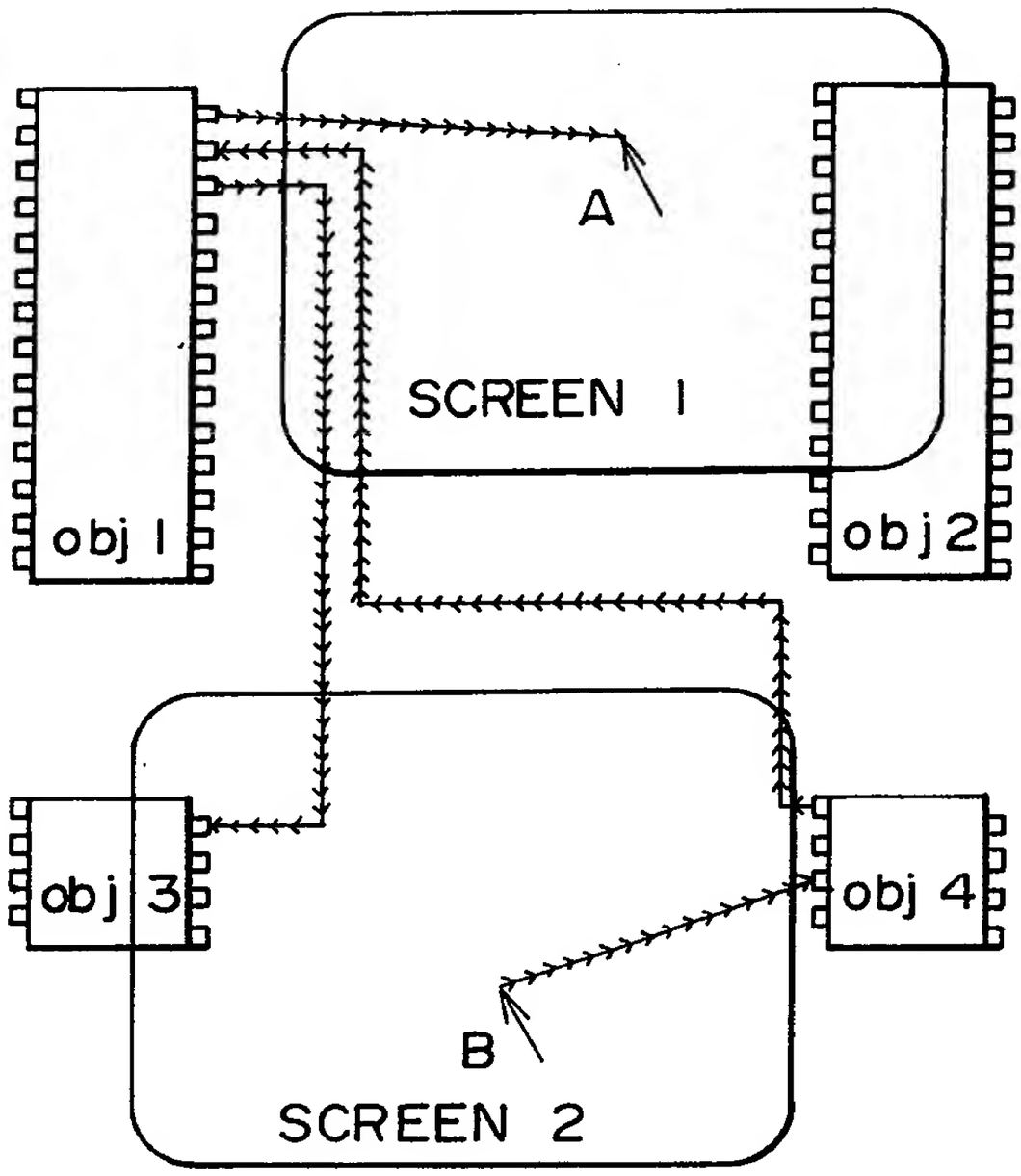

Fig.52(B)

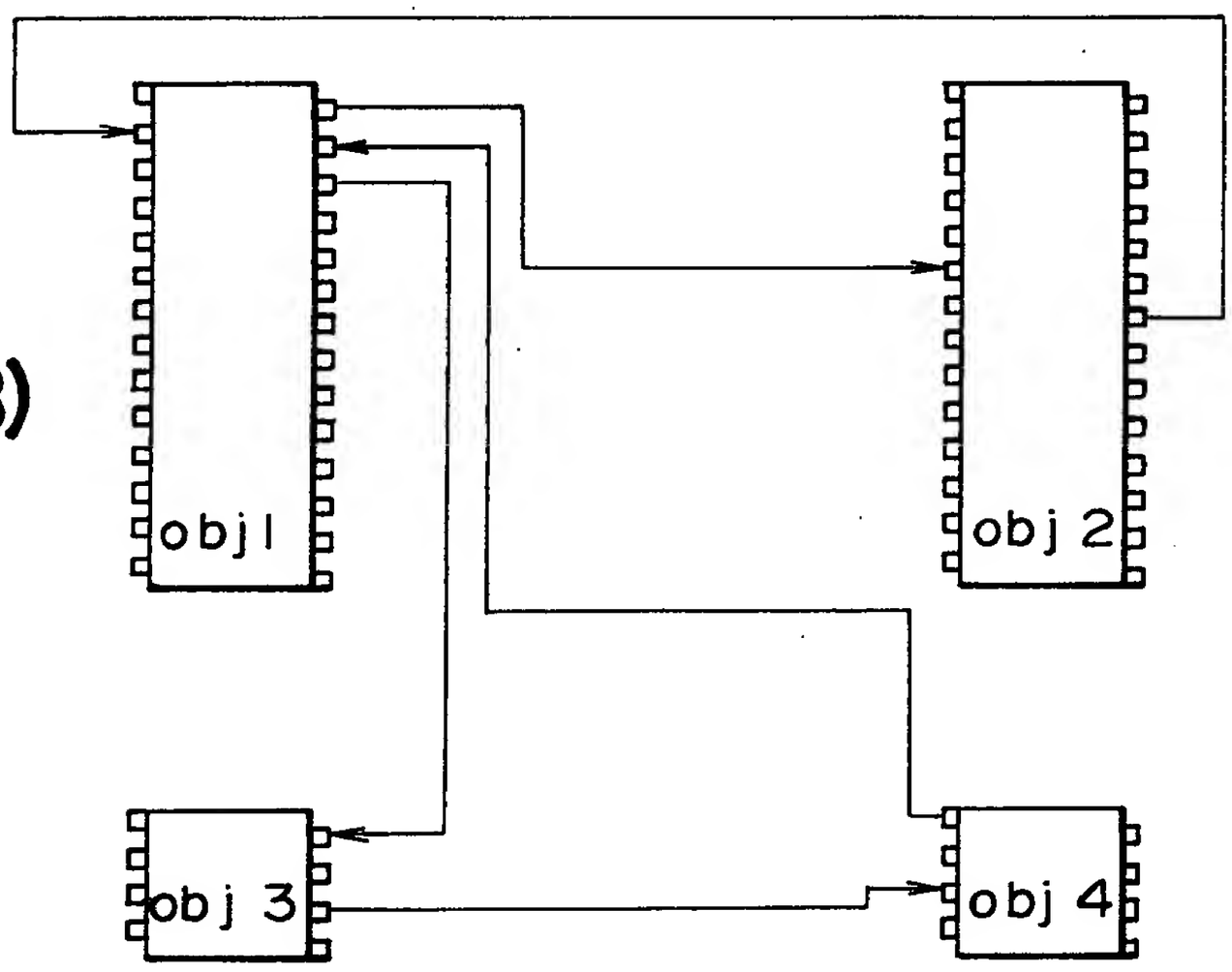

Fig.53

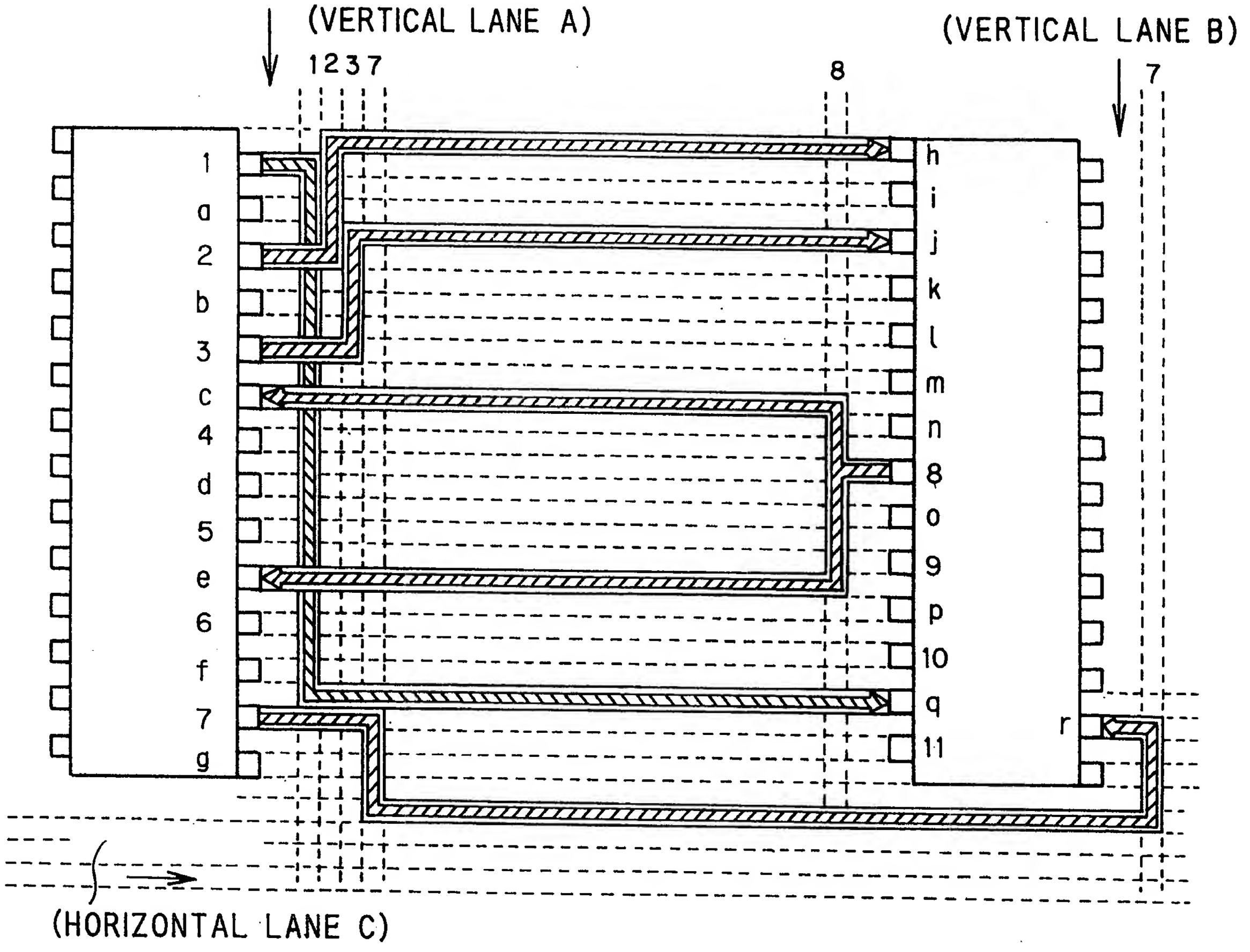
(VERTICAL LANE A)
1237
8
(VERTICAL LANE B)
7
1
a
2
b
3
c
4
d
5
e
6
f
7
g
h
i
j
k
l
m
n
8
o
9
p
10
q
11
r
(HORIZONTAL LANE C)

Fig. 54

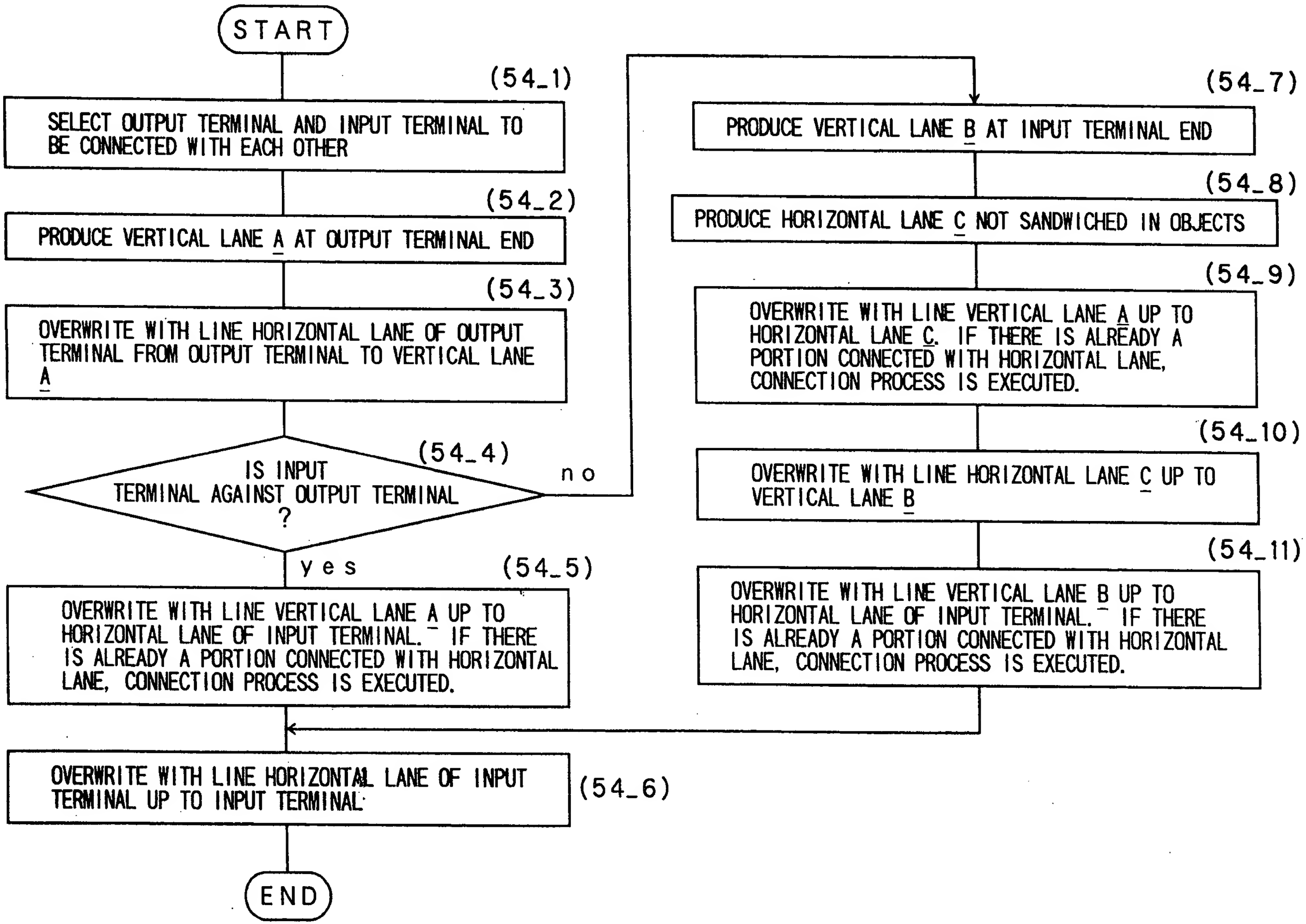
START
(54_1)
SELECT OUTPUT TERMINAL AND INPUT TERMINAL TO BE CONNECTED WITH EACH OTHER
(54_2)
PRODUCE VERTICAL LANE A AT OUTPUT TERMINAL END
(54_3)
OVERWRITE WITH LINE HORIZONTAL LANE OF OUTPUT TERMINAL FROM OUTPUT TERMINAL TO VERTICAL LANE A
(54_4)
IS INPUT TERMINAL AGAINST OUTPUT TERMINAL ?
no
yes
(54_5)
OVERWRITE WITH LINE VERTICAL LANE A UP TO HORIZONTAL LANE OF INPUT TERMINAL. IF THERE IS ALREADY A PORTION CONNECTED WITH HORIZONTAL LANE, CONNECTION PROCESS IS EXECUTED.
(54_6)
OVERWRITE WITH LINE HORIZONTAL LANE OF INPUT TERMINAL UP TO INPUT TERMINAL
END
(54_7)
PRODUCE VERTICAL LANE B AT INPUT TERMINAL END
(54_8)
PRODUCE HORIZONTAL LANE C NOT SANDWICHED IN OBJECTS
(54_9)
OVERWRITE WITH LINE VERTICAL LANE A UP TO HORIZONTAL LANE C. IF THERE IS ALREADY A PORTION CONNECTED WITH HORIZONTAL LANE, CONNECTION PROCESS IS EXECUTED.
(54_10)
OVERWRITE WITH LINE HORIZONTAL LANE C UP TO VERTICAL LANE B
(54_11)
OVERWRITE WITH LINE VERTICAL LANE B UP TO HORIZONTAL LANE OF INPUT TERMINAL. IF THERE IS ALREADY A PORTION CONNECTED WITH HORIZONTAL LANE, CONNECTION PROCESS IS EXECUTED.

Fig.55

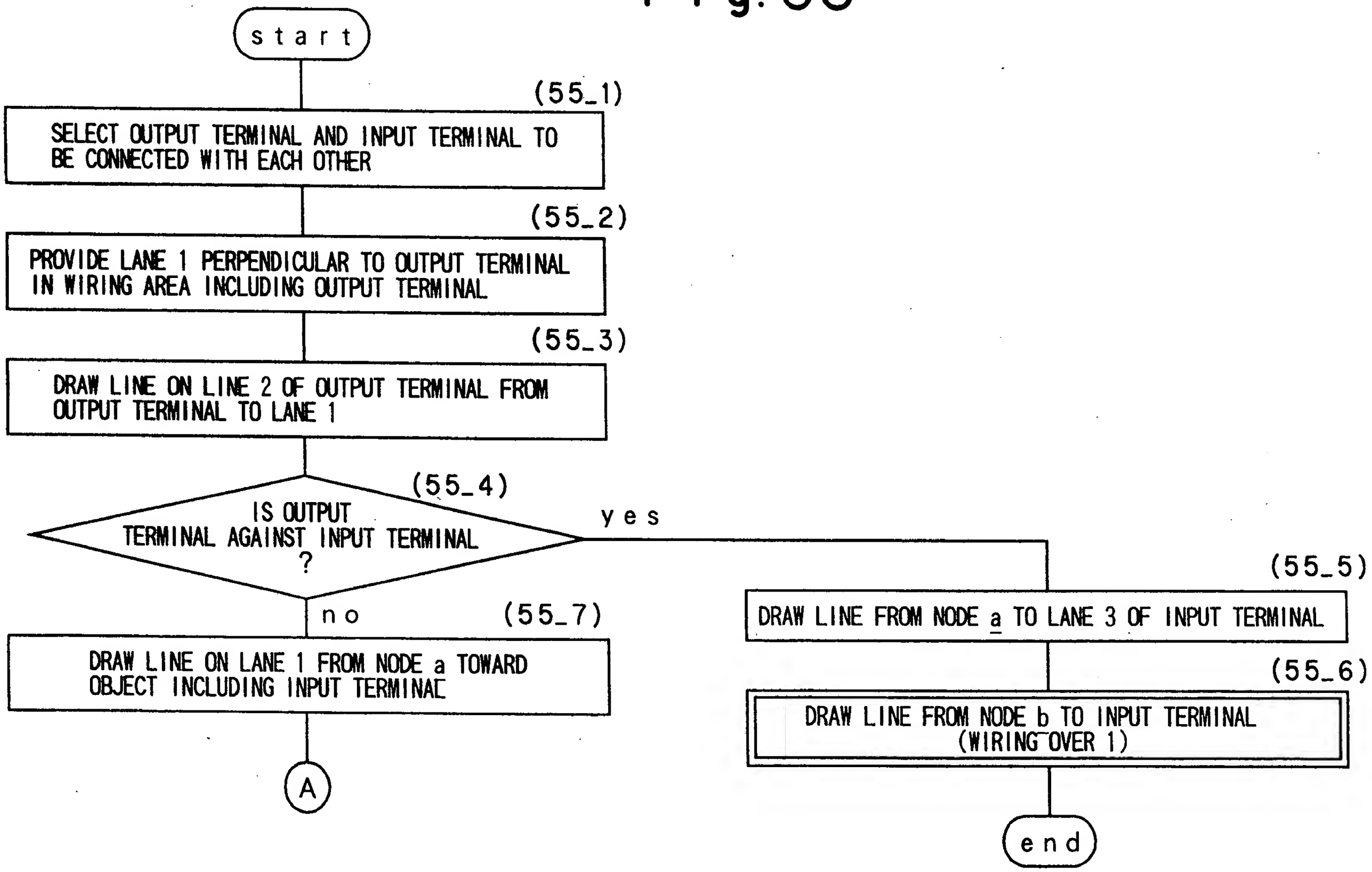
start
(55_1)
SELECT OUTPUT TERMINAL AND INPUT TERMINAL TO BE CONNECTED WITH EACH OTHER
(55_2)
PROVIDE LANE 1 PERPENDICULAR TO OUTPUT TERMINAL IN WIRING AREA INCLUDING OUTPUT TERMINAL
(55_3)
DRAW LINE ON LINE 2 OF OUTPUT TERMINAL FROM OUTPUT TERMINAL TO LANE 1
(55_4)
IS OUTPUT TERMINAL AGAINST INPUT TERMINAL ?
yes
(55_5)
DRAW LINE FROM NODE a TO LANE 3 OF INPUT TERMINAL
(55_6)
DRAW LINE FROM NODE b TO INPUT TERMINAL (WIRING OVER 1)
end
no
(55_7)
DRAW LINE ON LANE 1 FROM NODE a TOWARD OBJECT INCLUDING INPUT TERMINAL
A

Fig.56

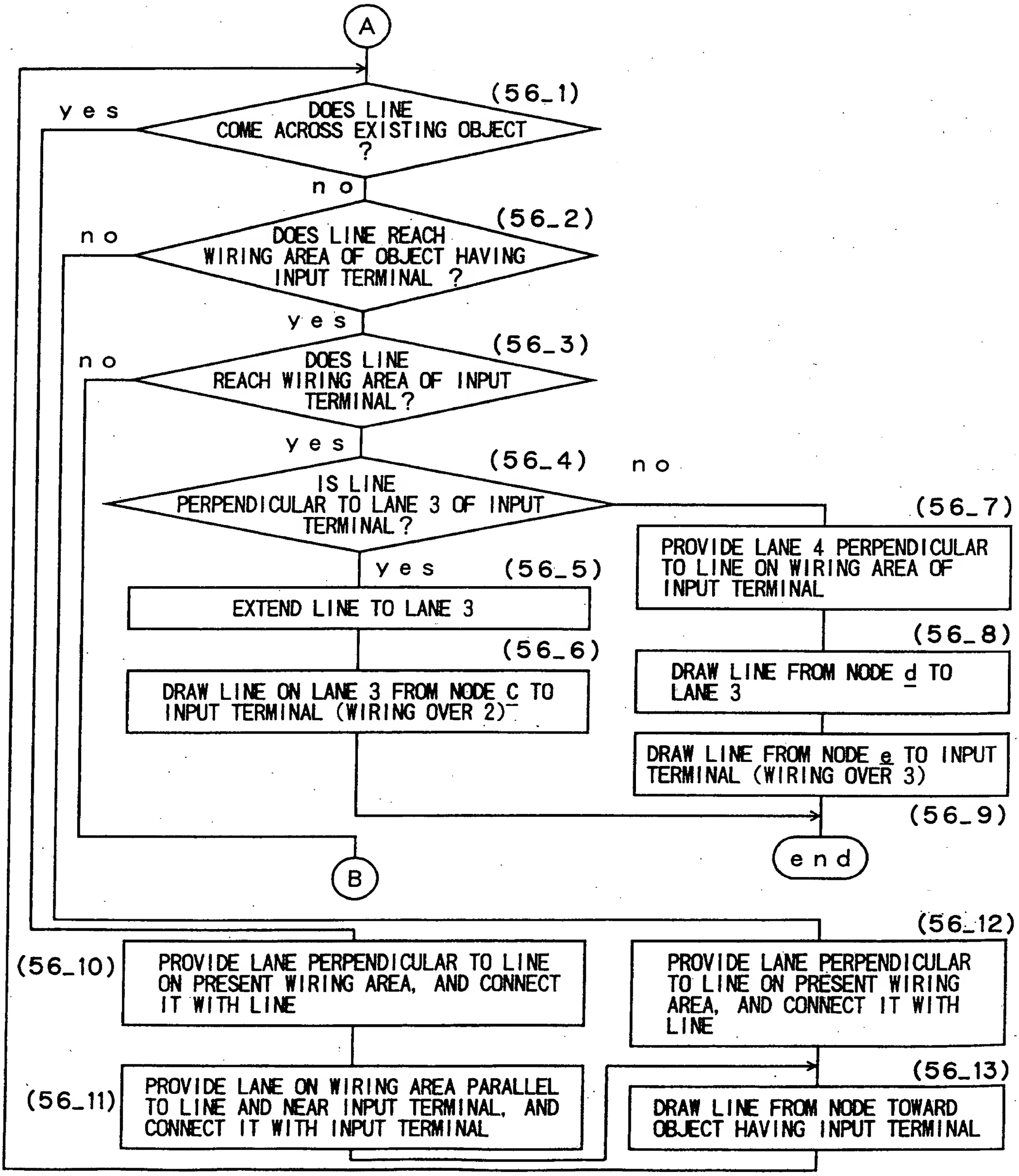
A
(56_1)
DOES LINE COME ACROSS EXISTING OBJECT ?
yes
no
(56_2)
DOES LINE REACH WIRING AREA OF OBJECT HAVING INPUT TERMINAL ?
no
yes
(56_3)
DOES LINE REACH WIRING AREA OF INPUT TERMINAL?
no
yes
(56_4)
IS LINE PERPENDICULAR TO LANE 3 OF INPUT TERMINAL?
no
yes
(56_5)
EXTEND LINE TO LANE 3
(56_6)
DRAW LINE ON LANE 3 FROM NODE C TO INPUT TERMINAL (WIRING OVER 2)
(56_7)
PROVIDE LANE 4 PERPENDICULAR TO LINE ON WIRING AREA OF INPUT TERMINAL
(56_8)
DRAW LINE FROM NODE d TO LANE 3
DRAW LINE FROM NODE e TO INPUT TERMINAL (WIRING OVER 3)
(56_9)
end
B
(56_10)
PROVIDE LANE PERPENDICULAR TO LINE ON PRESENT WIRING AREA, AND CONNECT IT WITH LINE
(56_11)
PROVIDE LANE ON WIRING AREA PARALLEL TO LINE AND NEAR INPUT TERMINAL, AND CONNECT IT WITH INPUT TERMINAL
(56_12)
PROVIDE LANE PERPENDICULAR TO LINE ON PRESENT WIRING AREA, AND CONNECT IT WITH LINE
(56_13)
DRAW LINE FROM NODE TOWARD OBJECT HAVING INPUT TERMINAL

Fig. 57

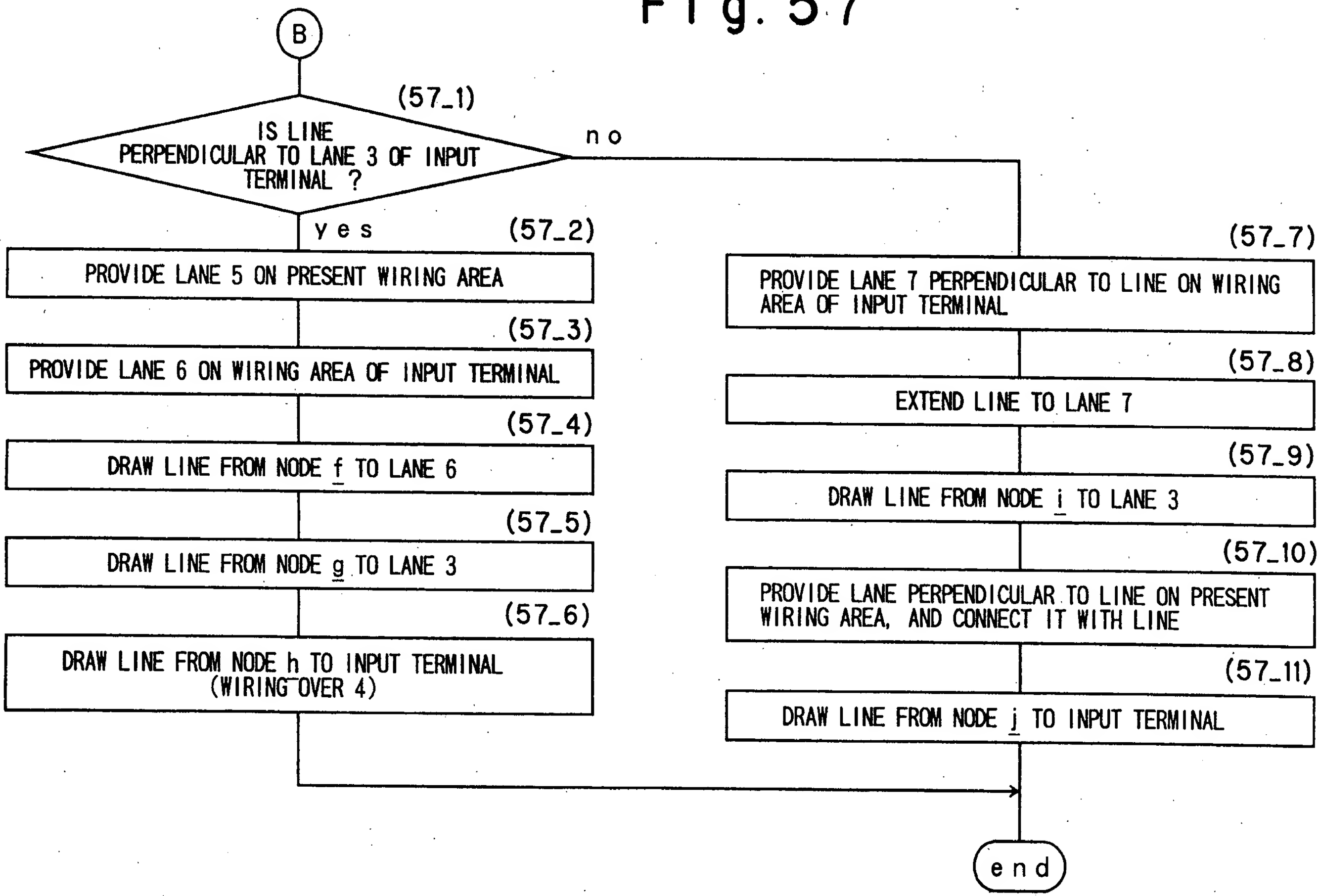
B
(57_1)
IS LINE PERPENDICULAR TO LANE 3 OF INPUT TERMINAL ?
yes
no
(57_2)
PROVIDE LANE 5 ON PRESENT WIRING AREA
(57_3)
PROVIDE LANE 6 ON WIRING AREA OF INPUT TERMINAL
(57_4)
DRAW LINE FROM NODE f TO LANE 6
(57_5)
DRAW LINE FROM NODE g TO LANE 3
(57_6)
DRAW LINE FROM NODE h TO INPUT TERMINAL (WIRING OVER 4)
(57_7)
PROVIDE LANE 7 PERPENDICULAR TO LINE ON WIRING AREA OF INPUT TERMINAL
(57_8)
EXTEND LINE TO LANE 7
(57_9)
DRAW LINE FROM NODE i TO LANE 3
(57_10)
PROVIDE LANE PERPENDICULAR TO LINE ON PRESENT WIRING AREA, AND CONNECT IT WITH LINE
(57_11)
DRAW LINE FROM NODE j TO INPUT TERMINAL
end

Fig. 58

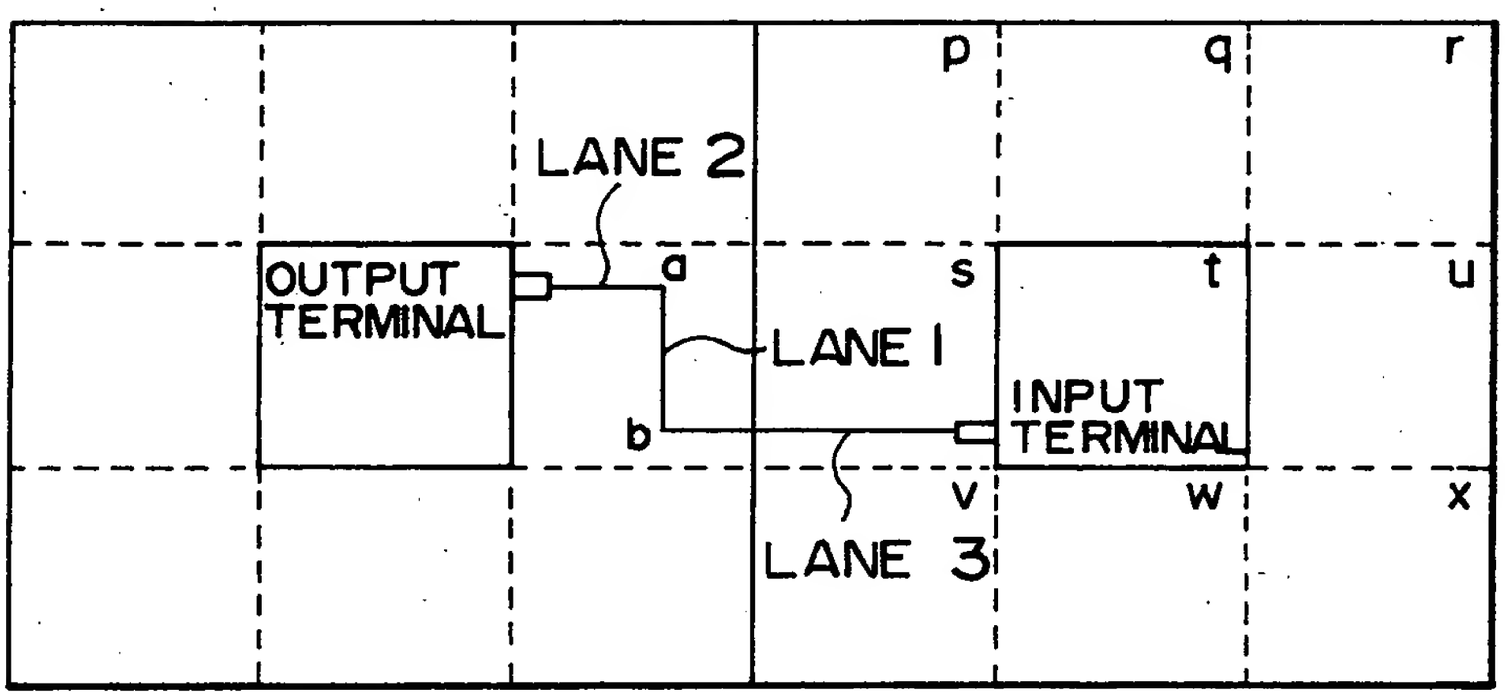
p
q
r
LANE 2
OUTPUT TERMINAL
a
s
t
u
LANE 1
INPUT TERMINAL
b
v
w
x
LANE 3

Fig. 59

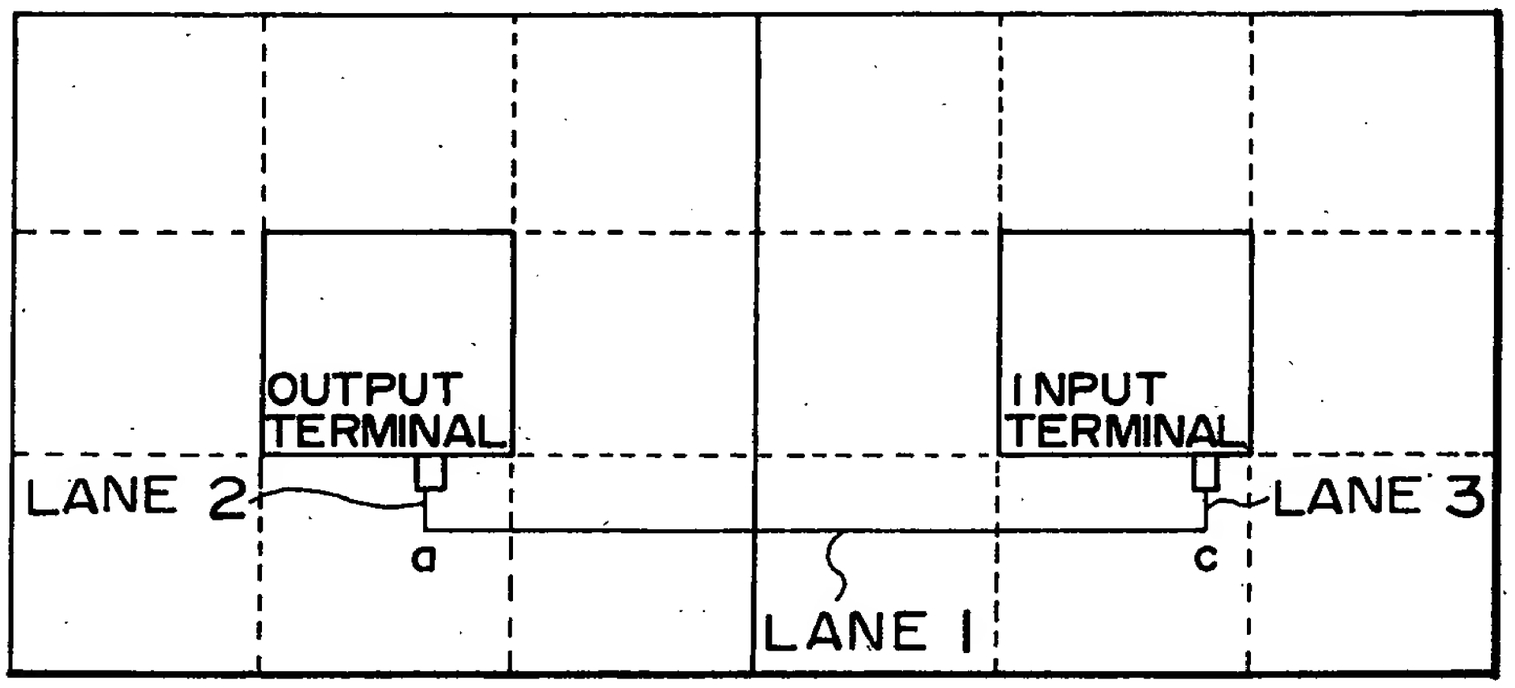
OUTPUT TERMINAL
INPUT TERMINAL
LANE 2
a
c
LANE 3
LANE 1

Fig. 60

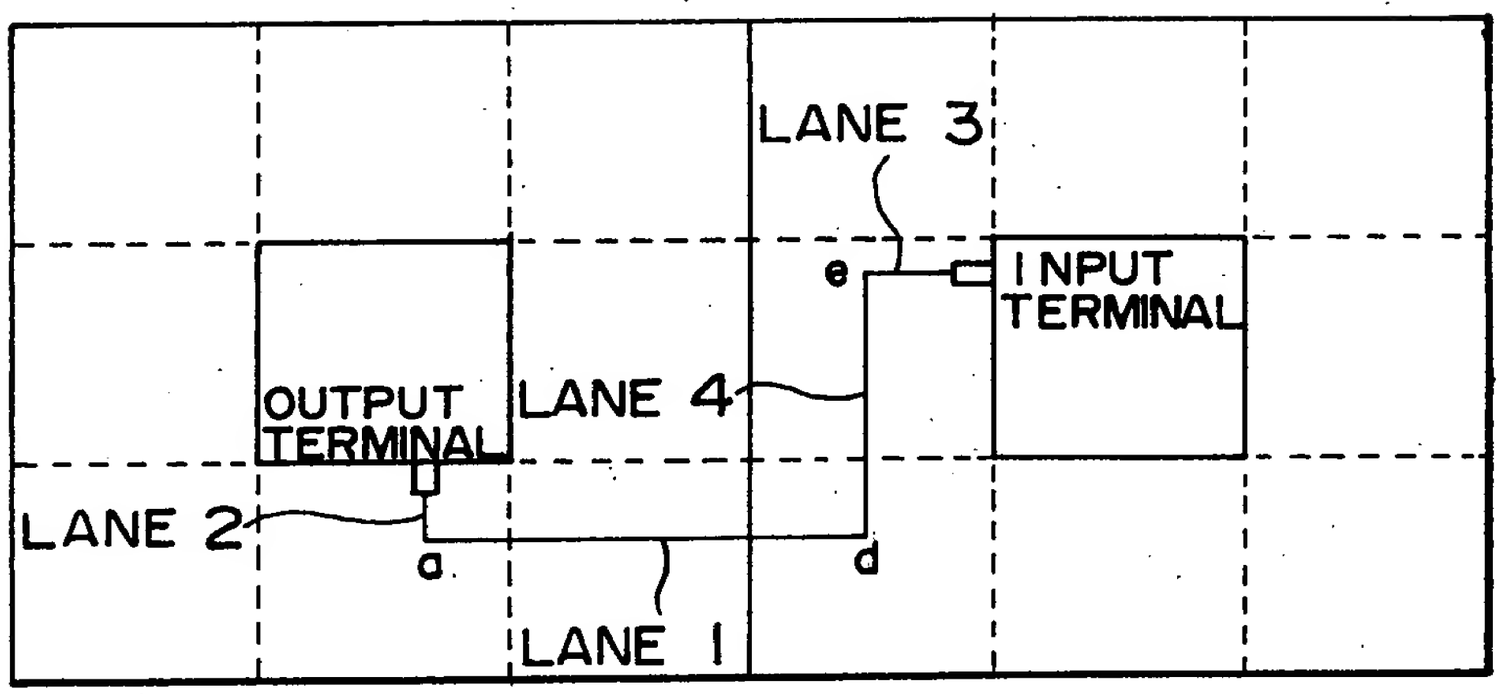

Fig. 61

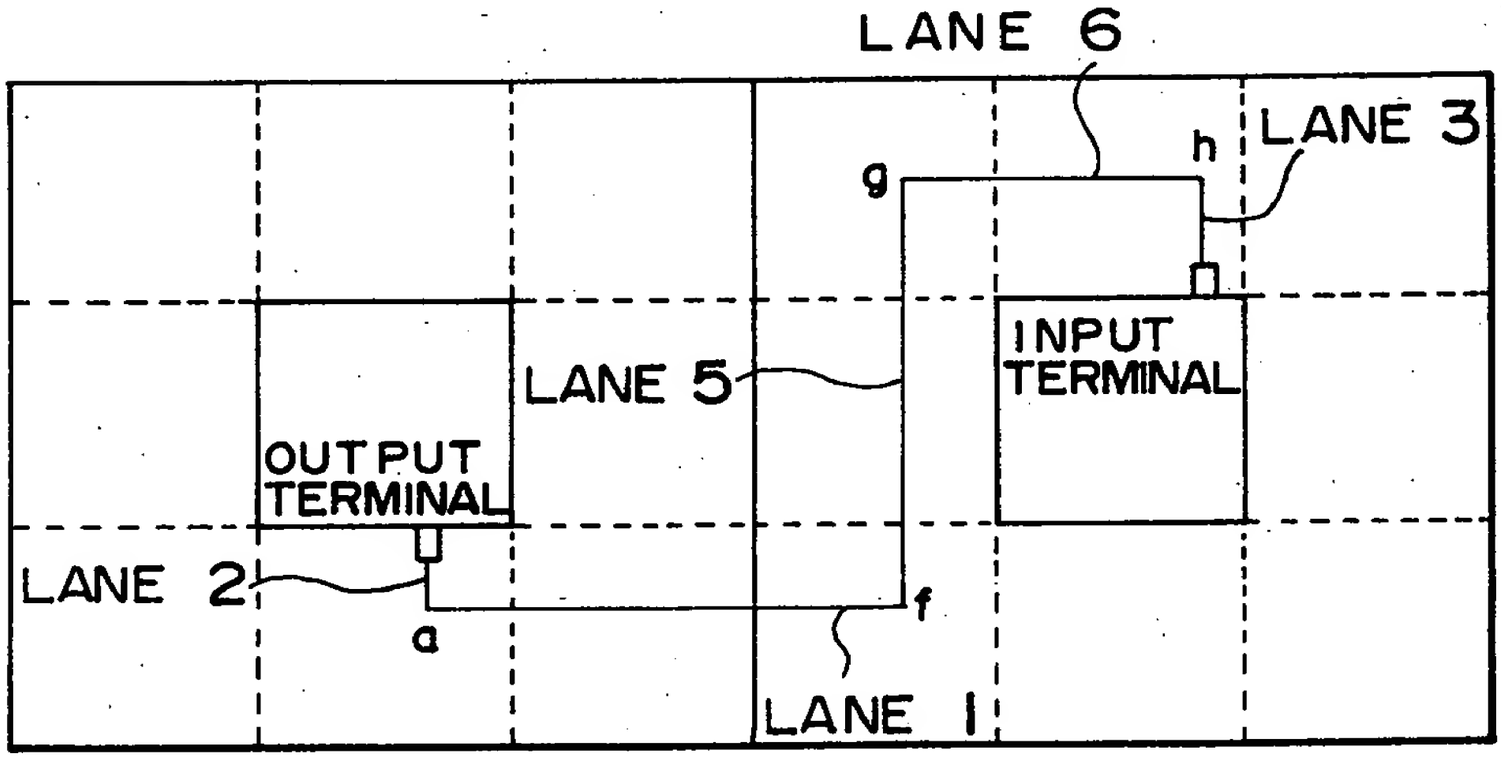

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Fig. 62

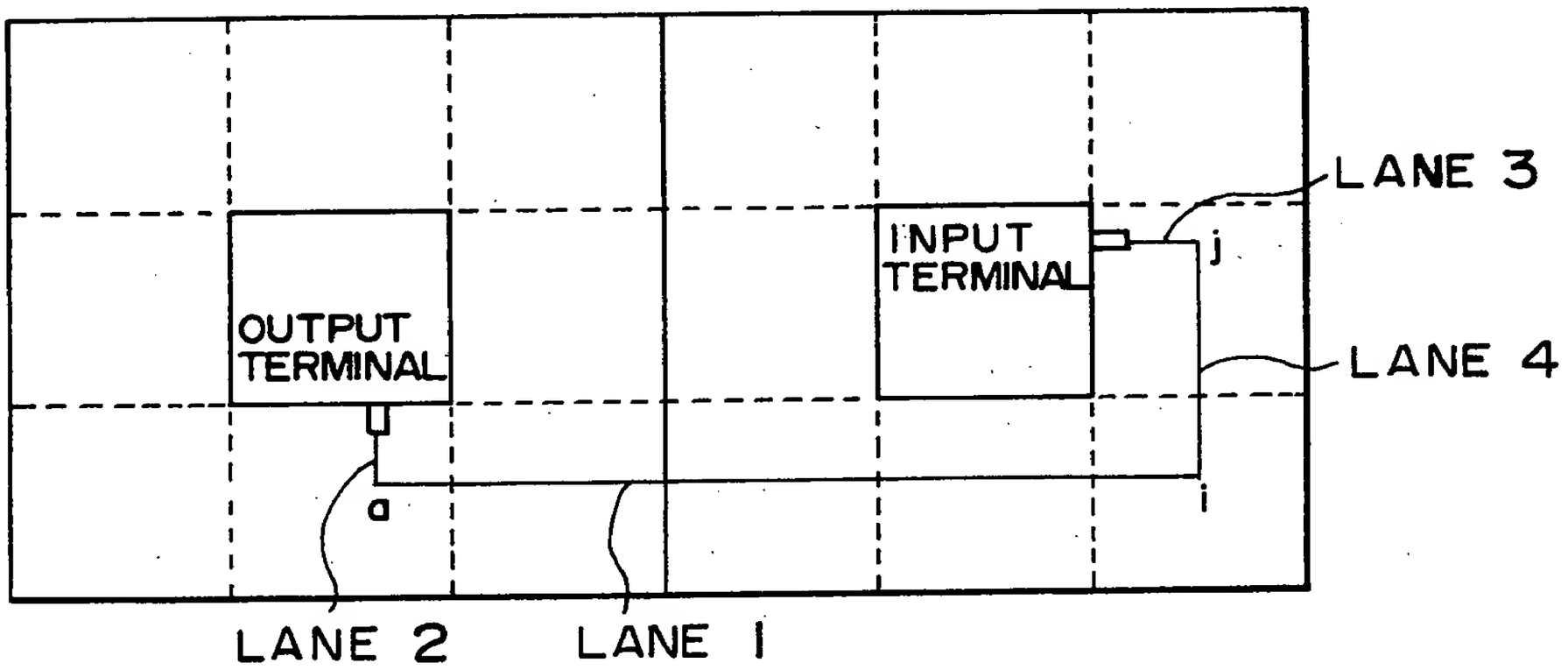

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Fig.63(A)

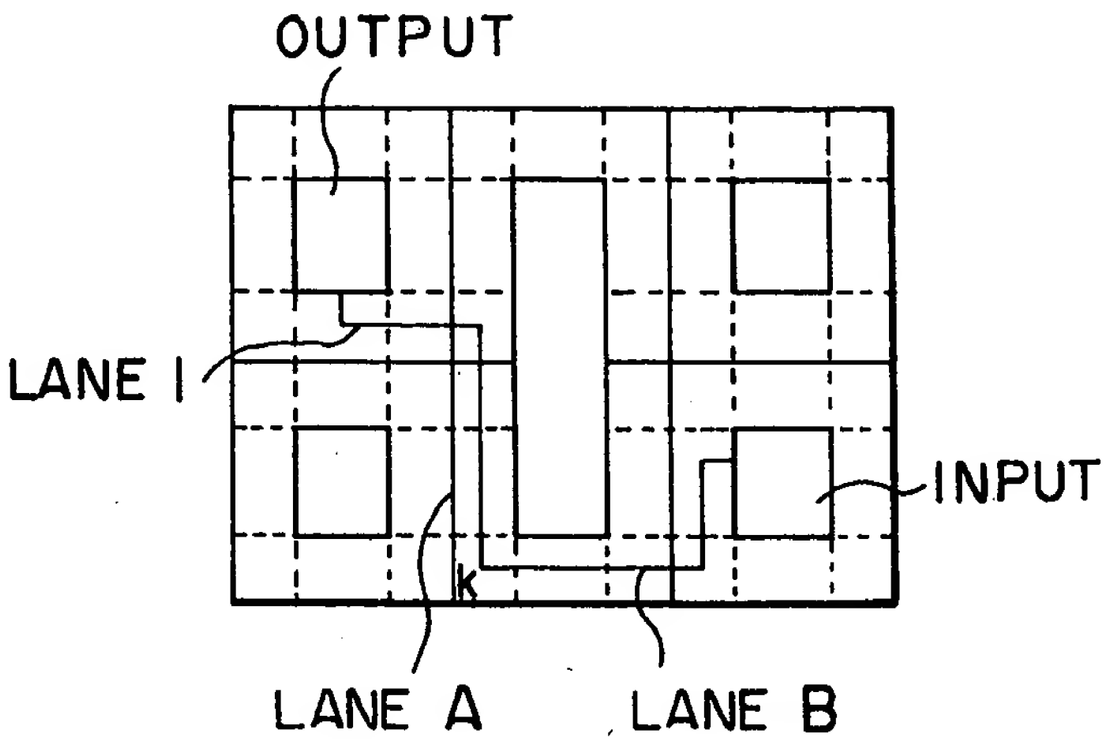


Fig.63(B)

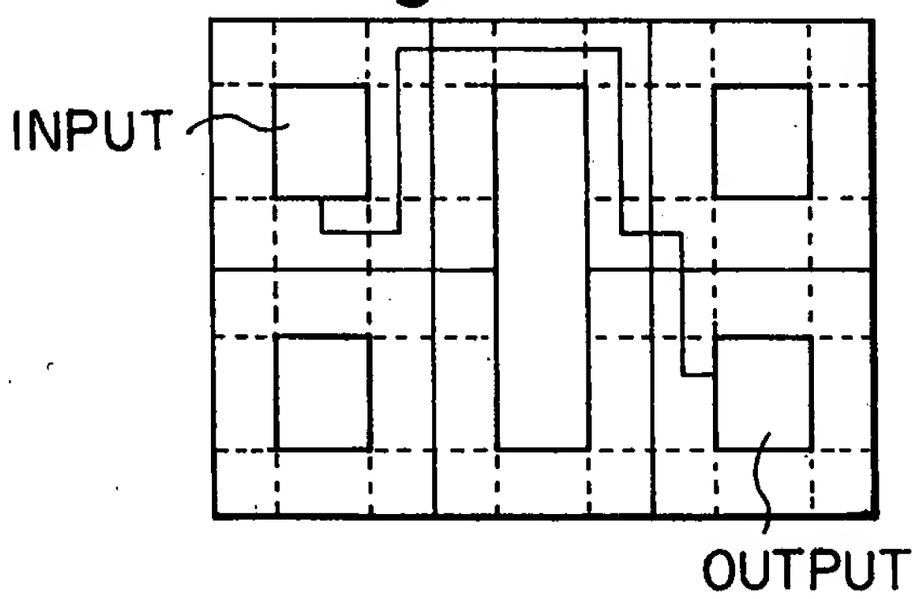


Fig.63(C)

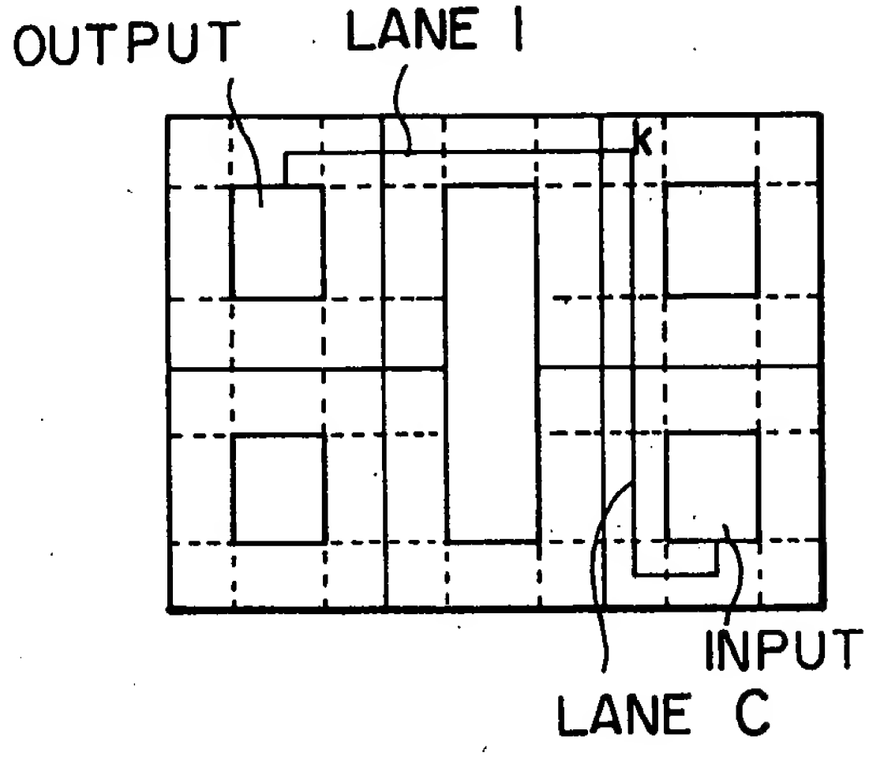


Fig.63(D)

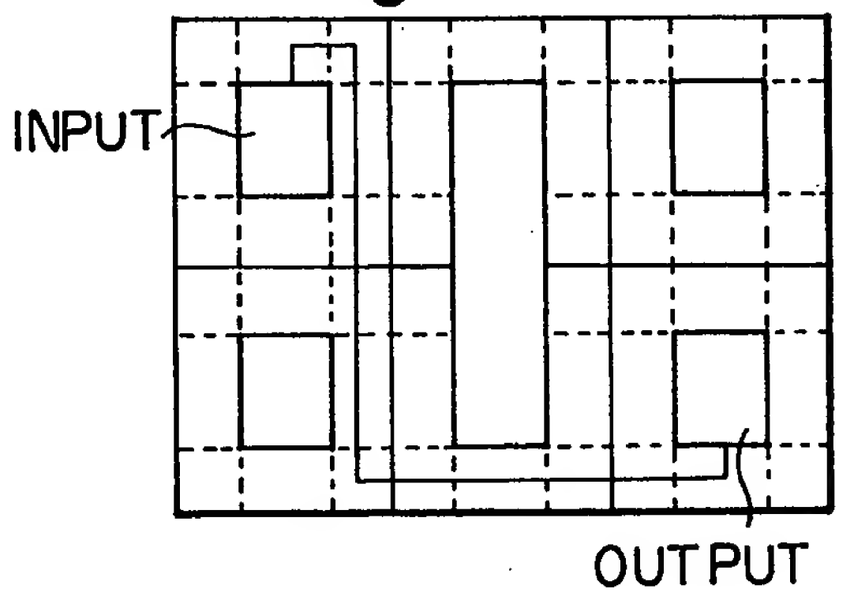
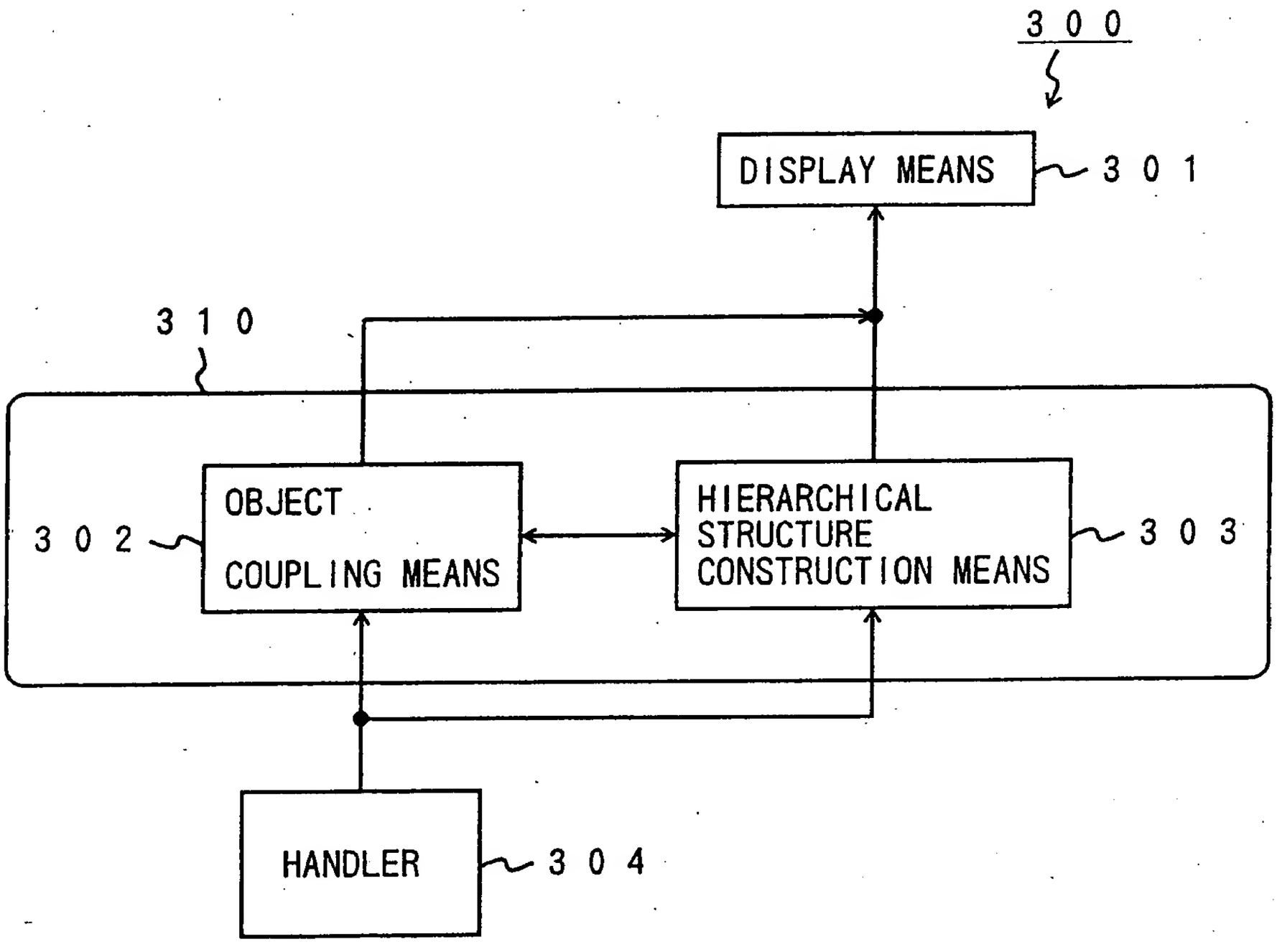


Fig.64



Docket No. 0054260

Fig.65

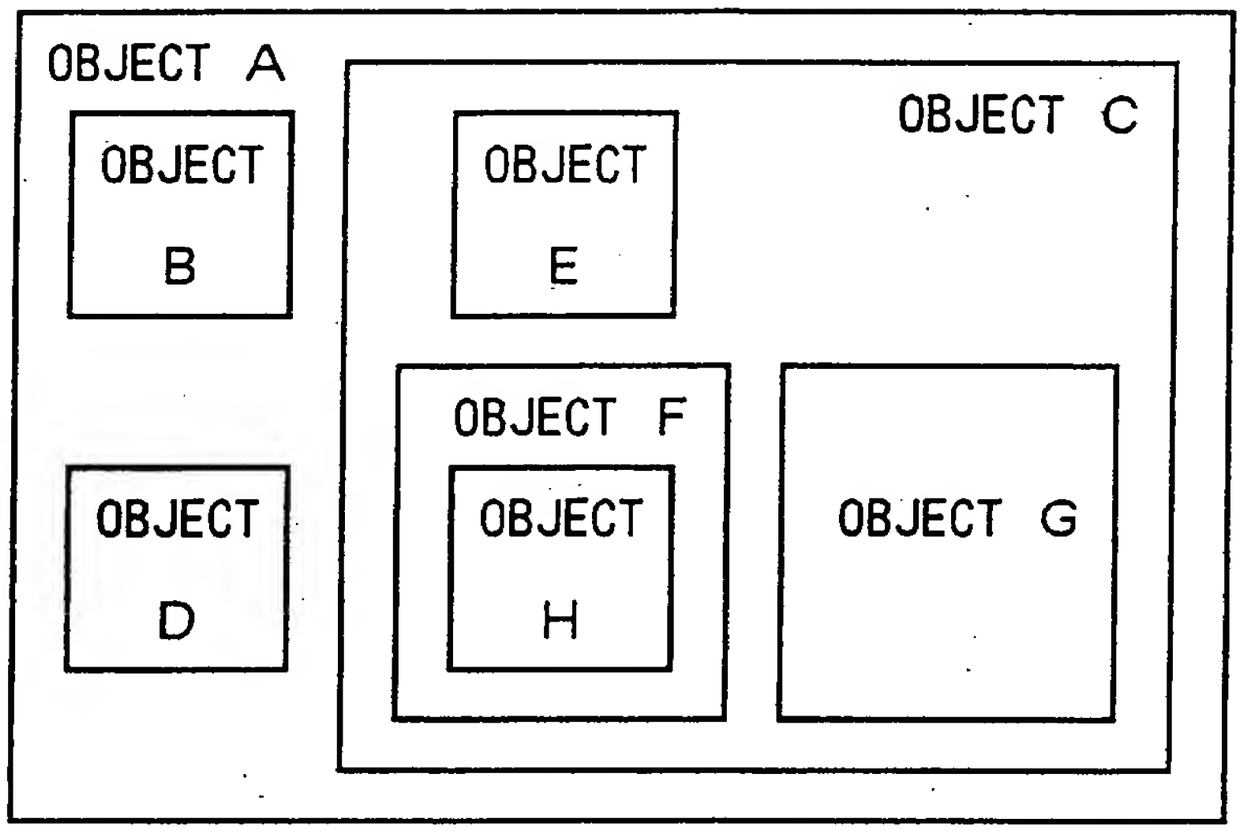
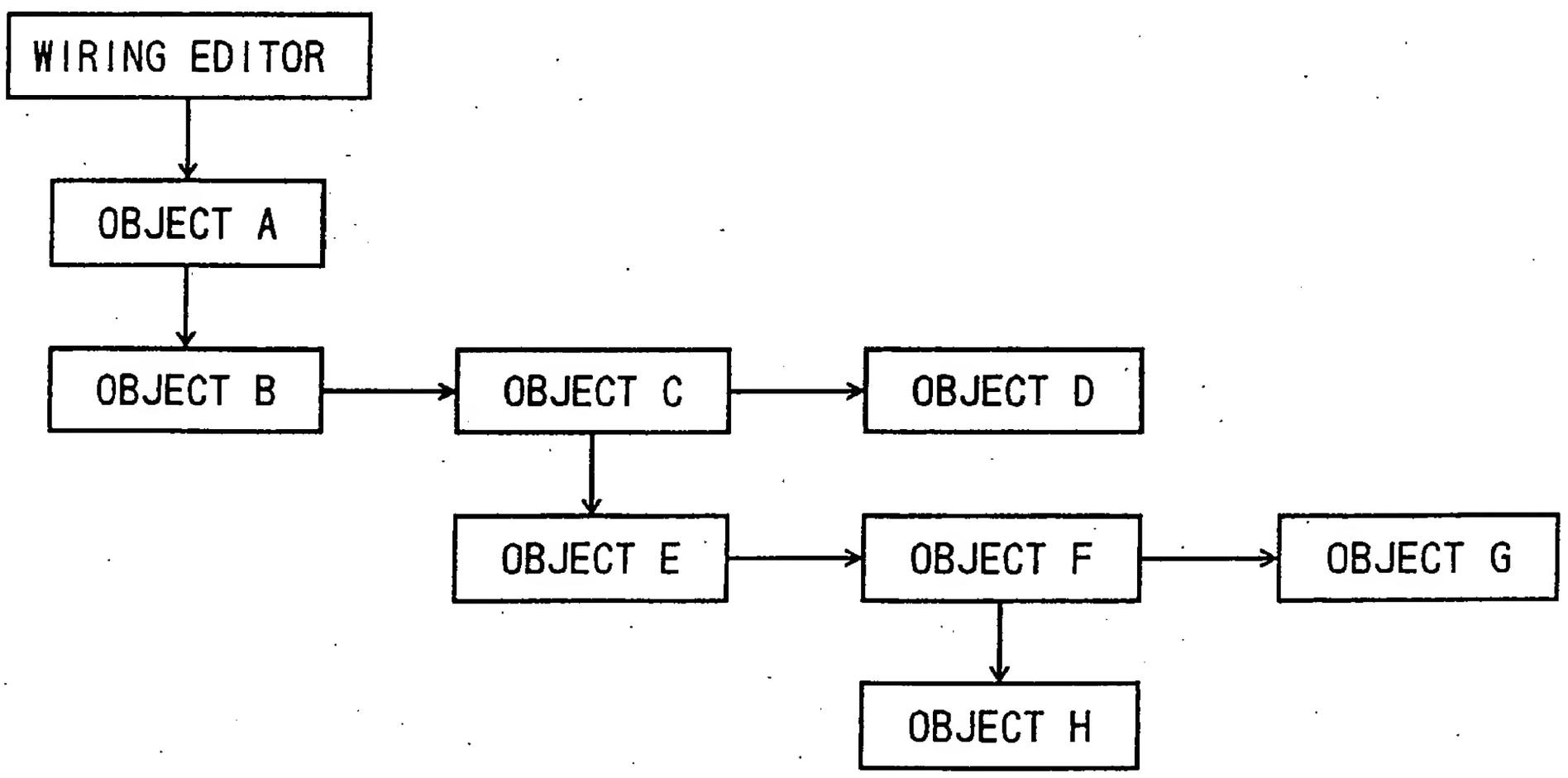


Fig.66



0627-5430-0104 JP 02/07/04

Fig.67

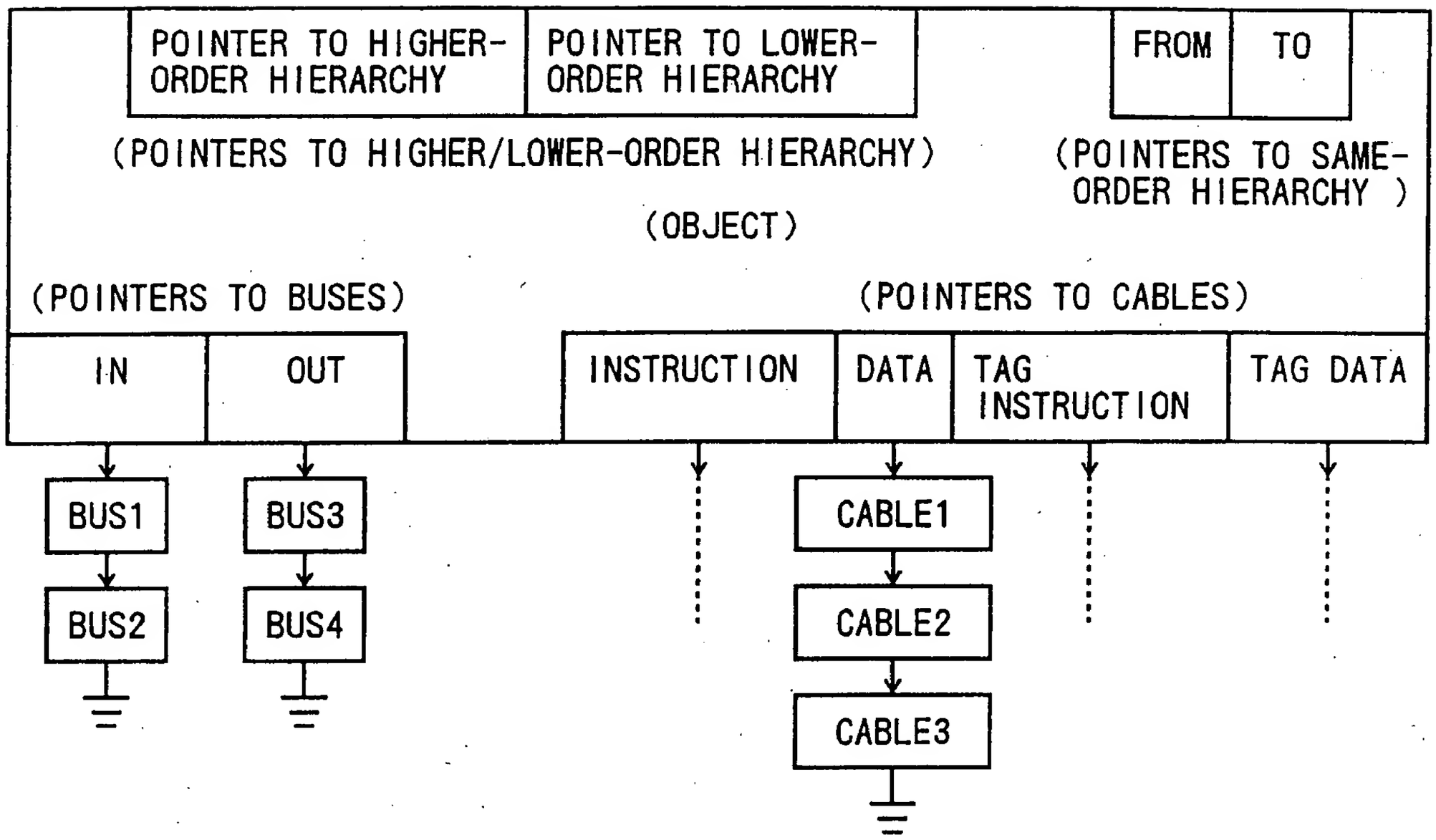


Fig.68

(BUS)

POINTER TO SUBSTANTIAL OBJECT
POINTER TO BUS OF SUBSTANTIAL OBJECT
POINTER TO NEXT BUS
OTHER DATA

Fig.69

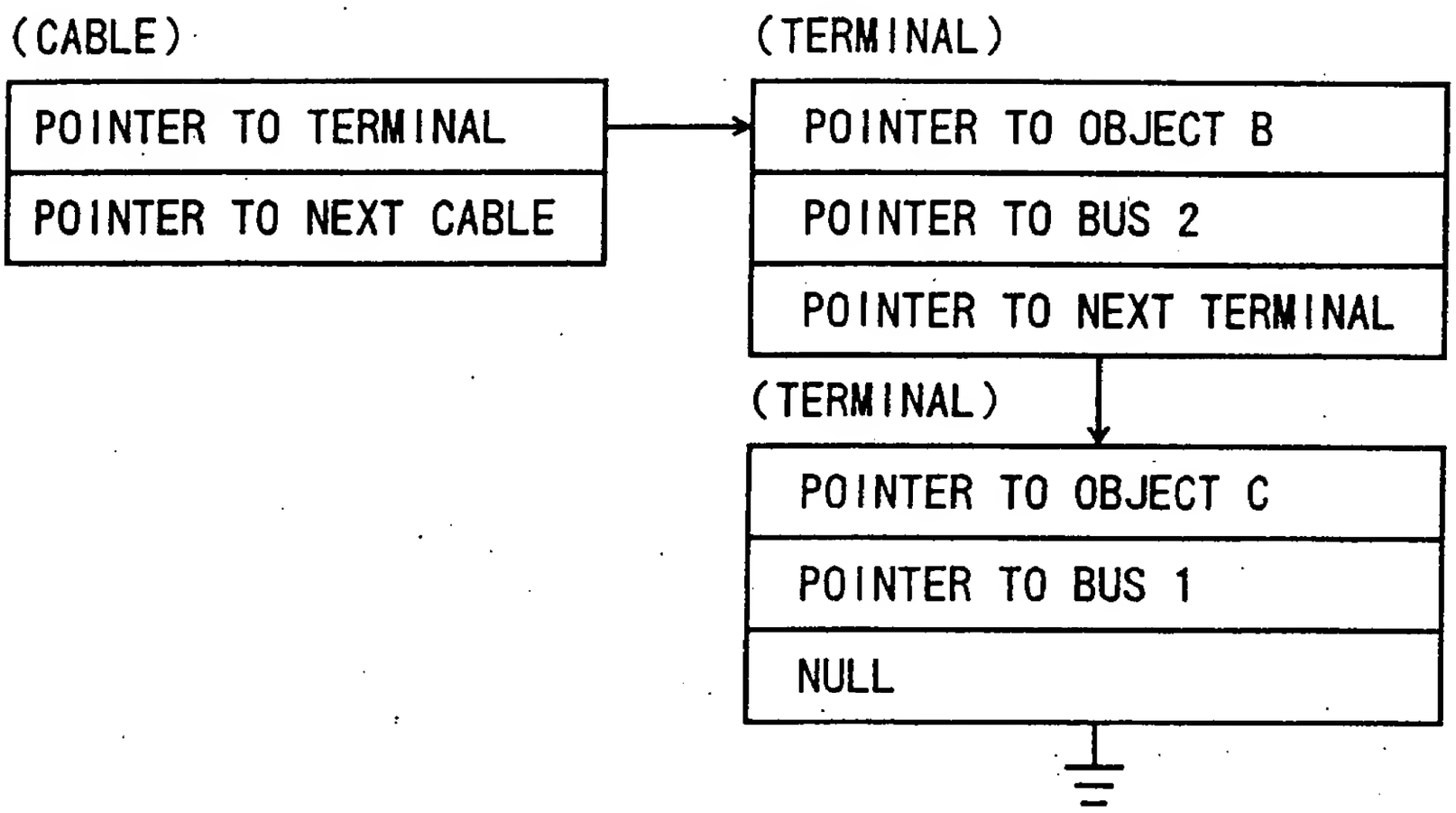
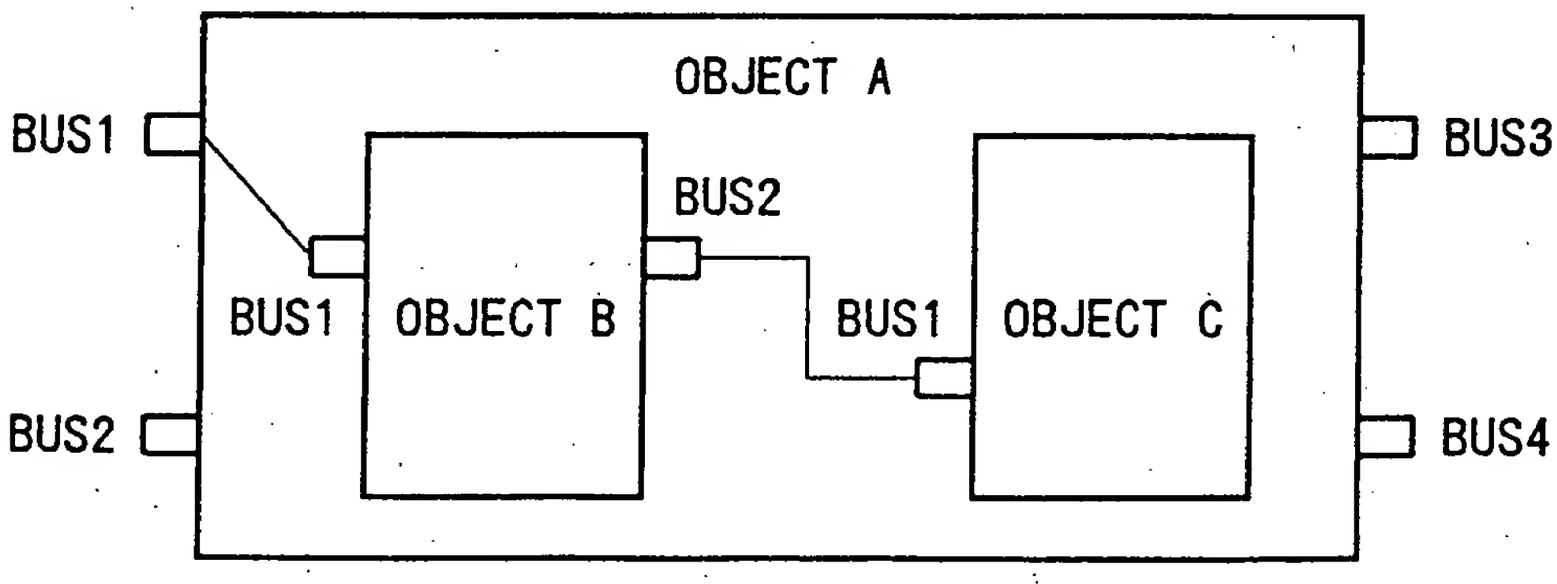


Fig.70



Loaded to database

Fig. 71

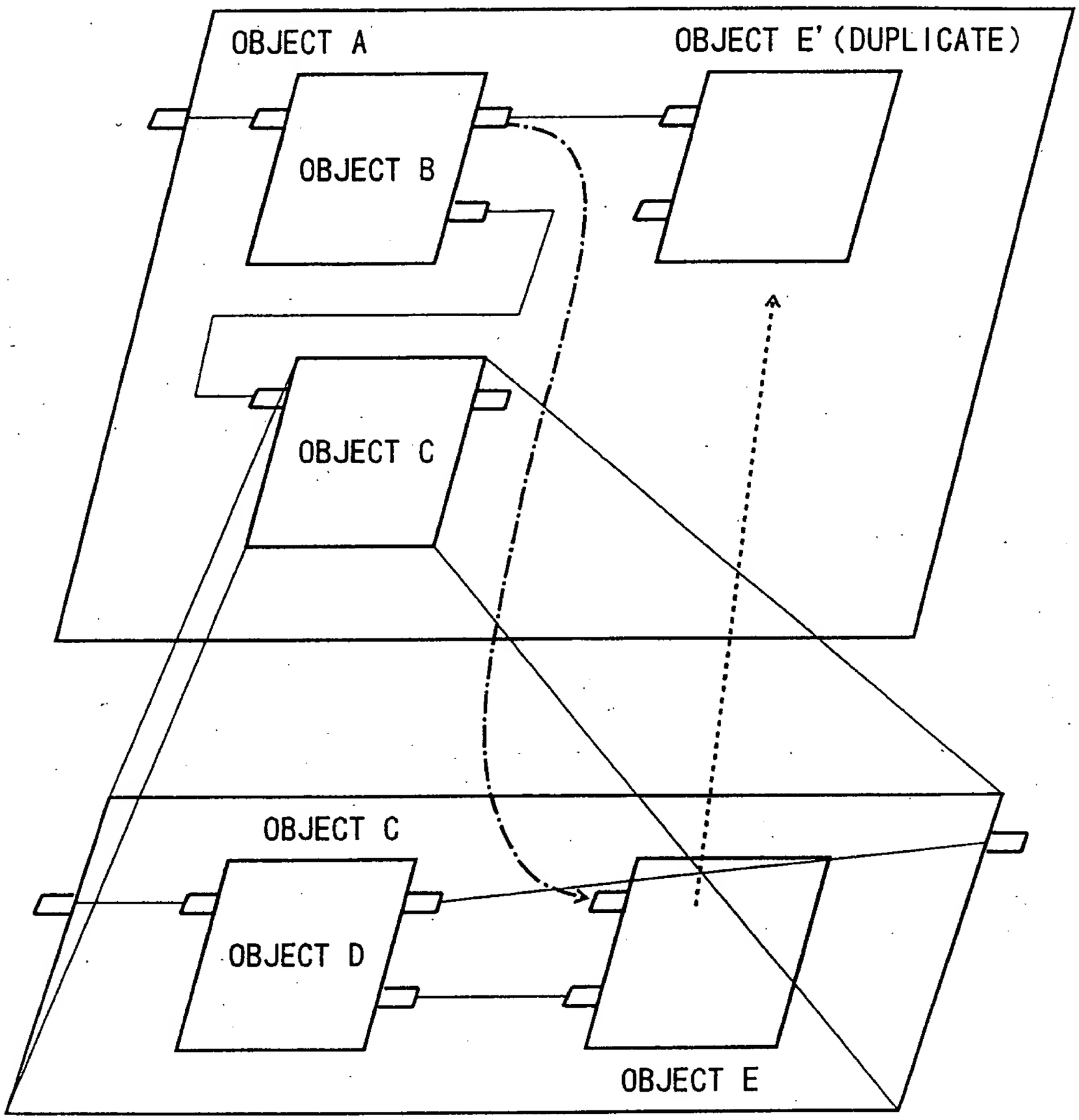

OBJECT A
OBJECT E' (DUPLICATE)
OBJECT B
OBJECT C
OBJECT C
OBJECT D
OBJECT E

Fig. 72

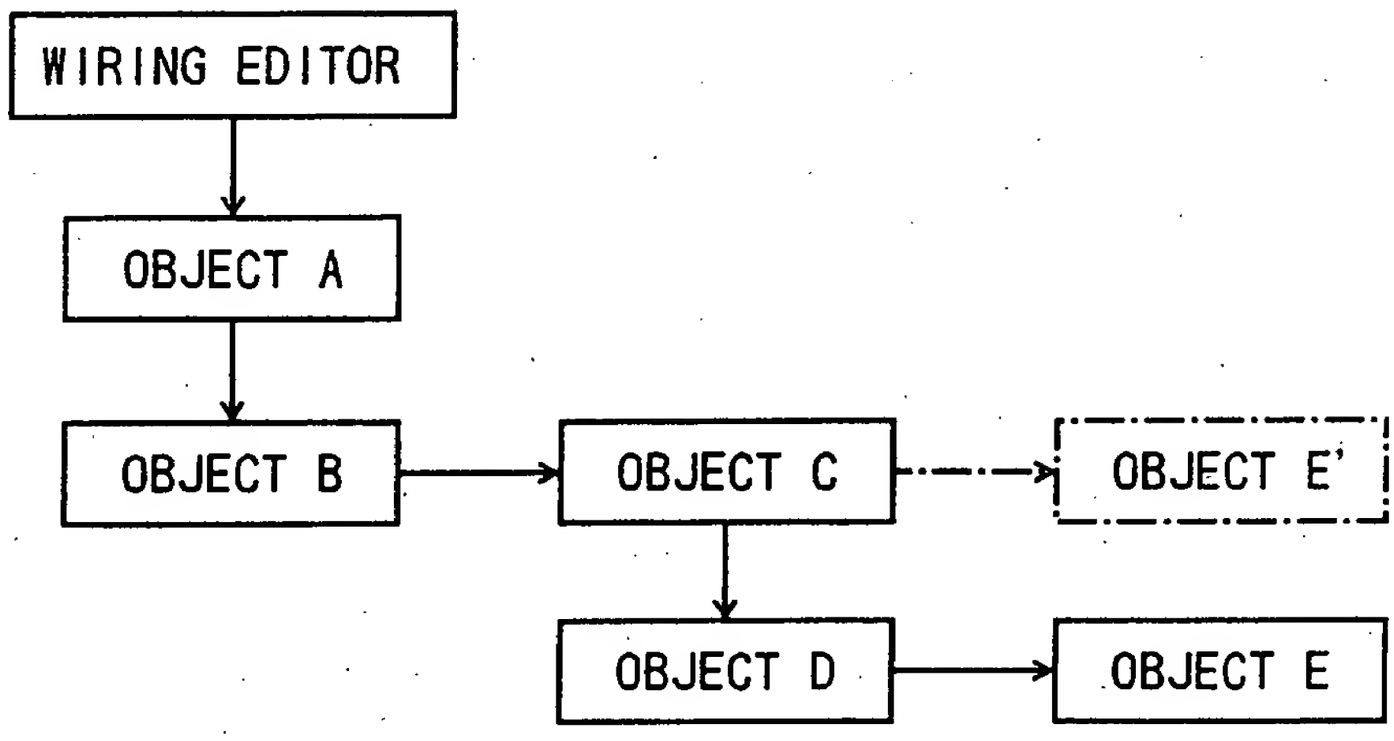
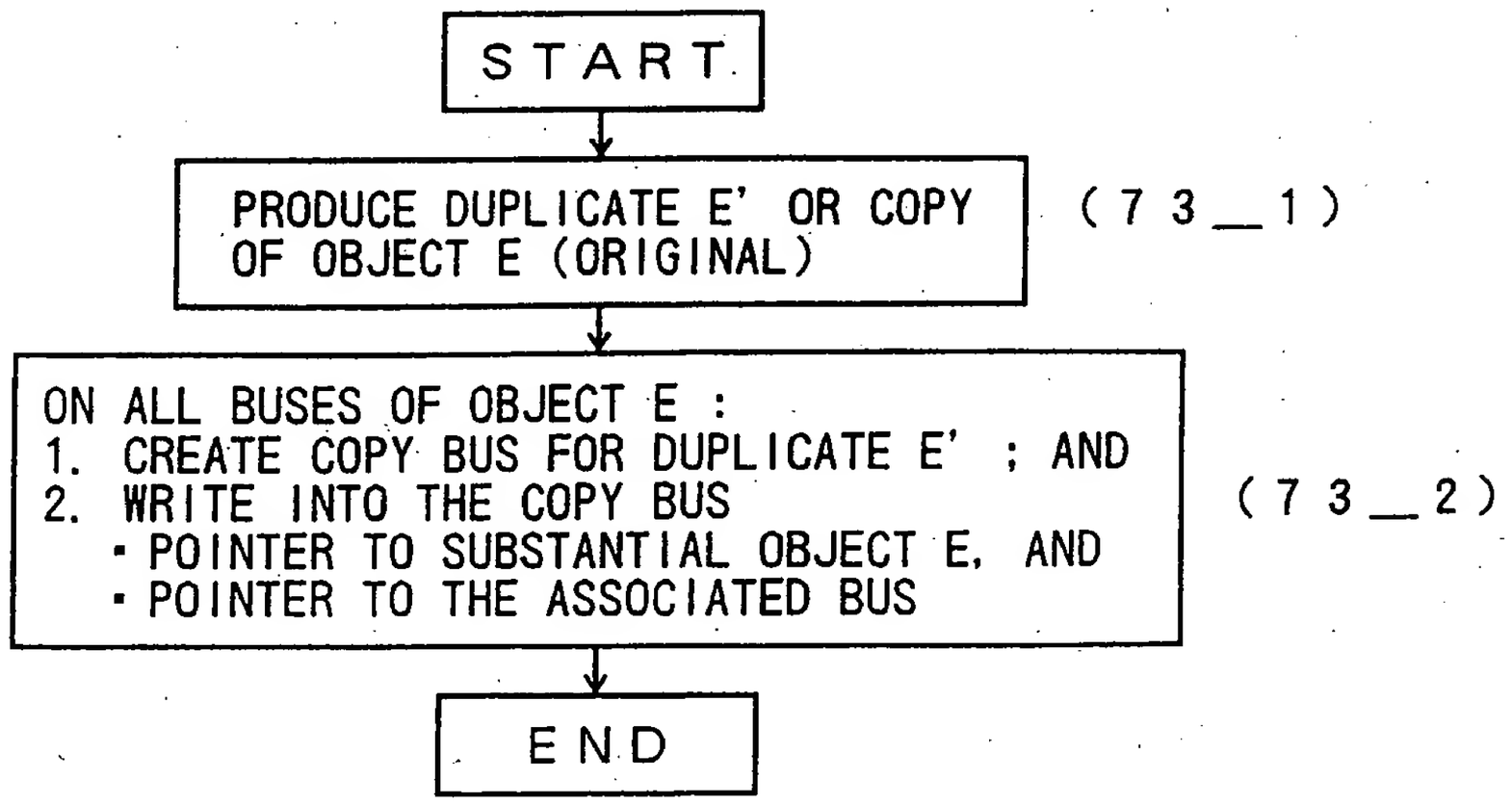


Fig. 73



Translation - Oct 4, 2000

Fig.74

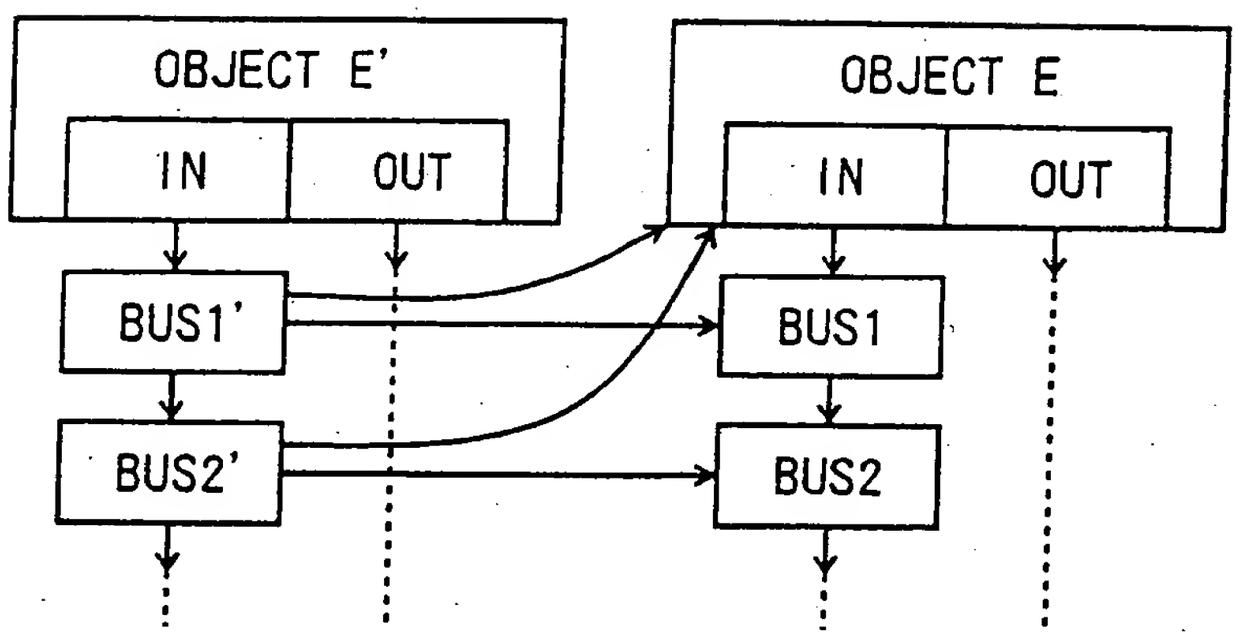
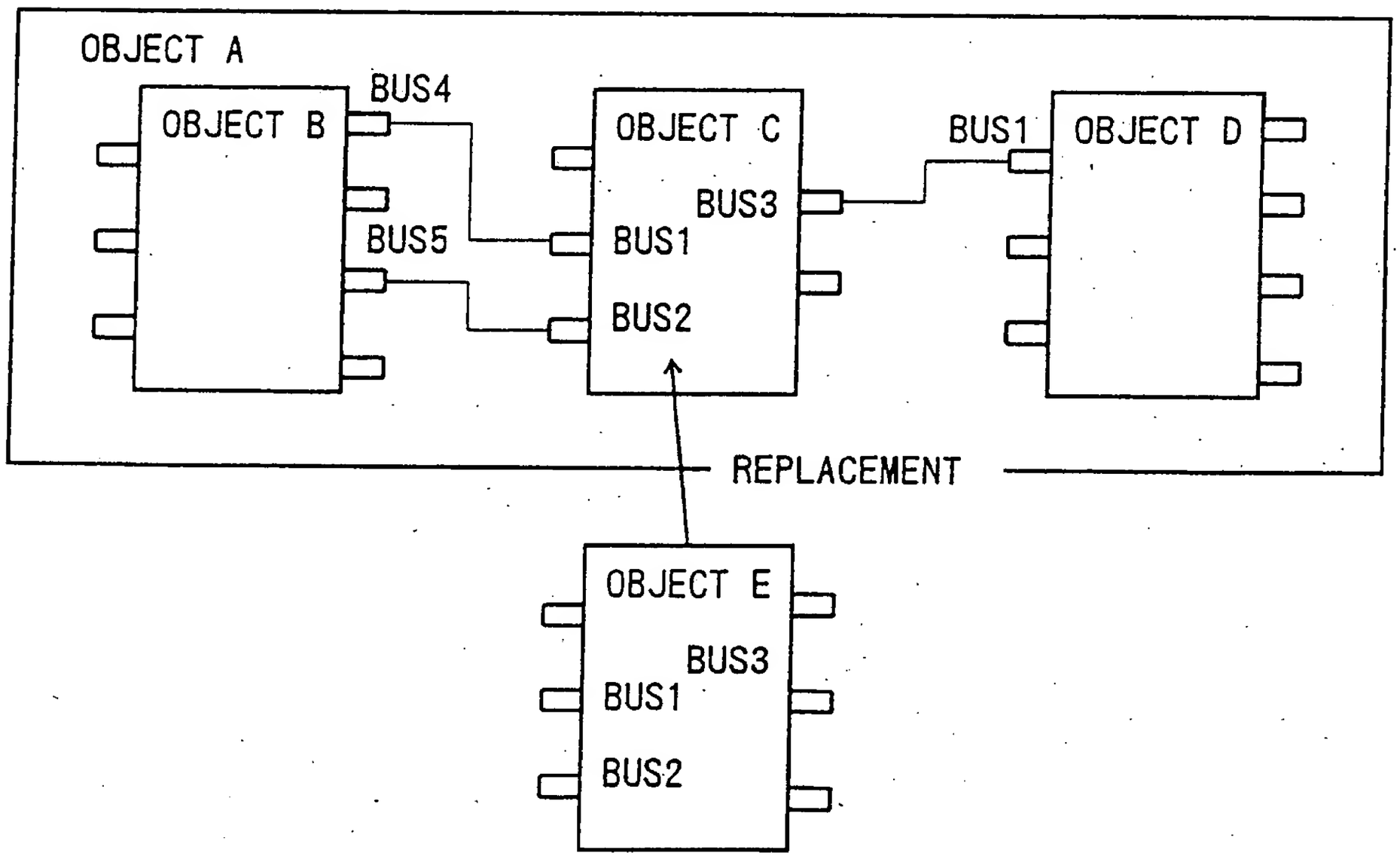


Fig.75



Executed: 05/09/2000

Fig.76

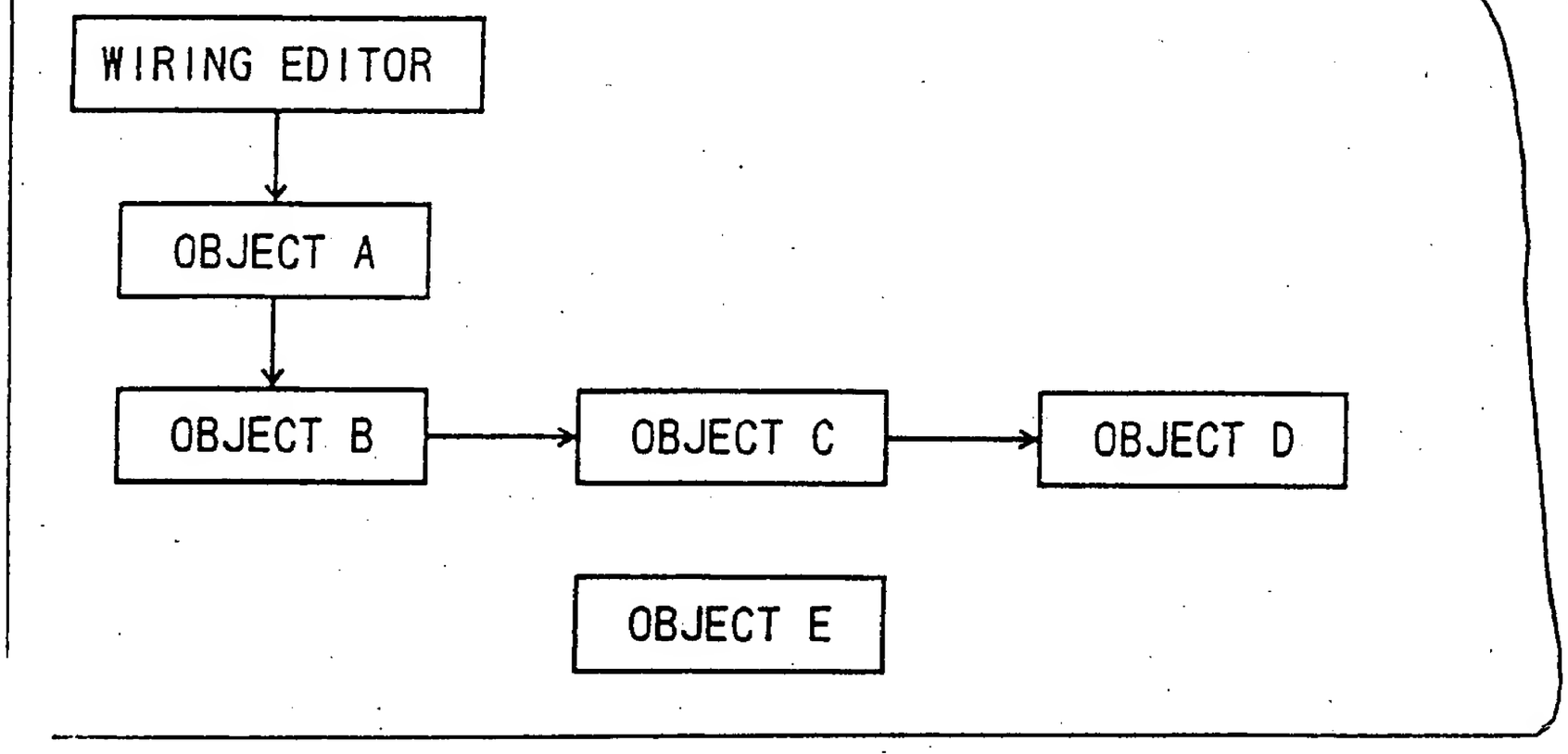


Fig.77

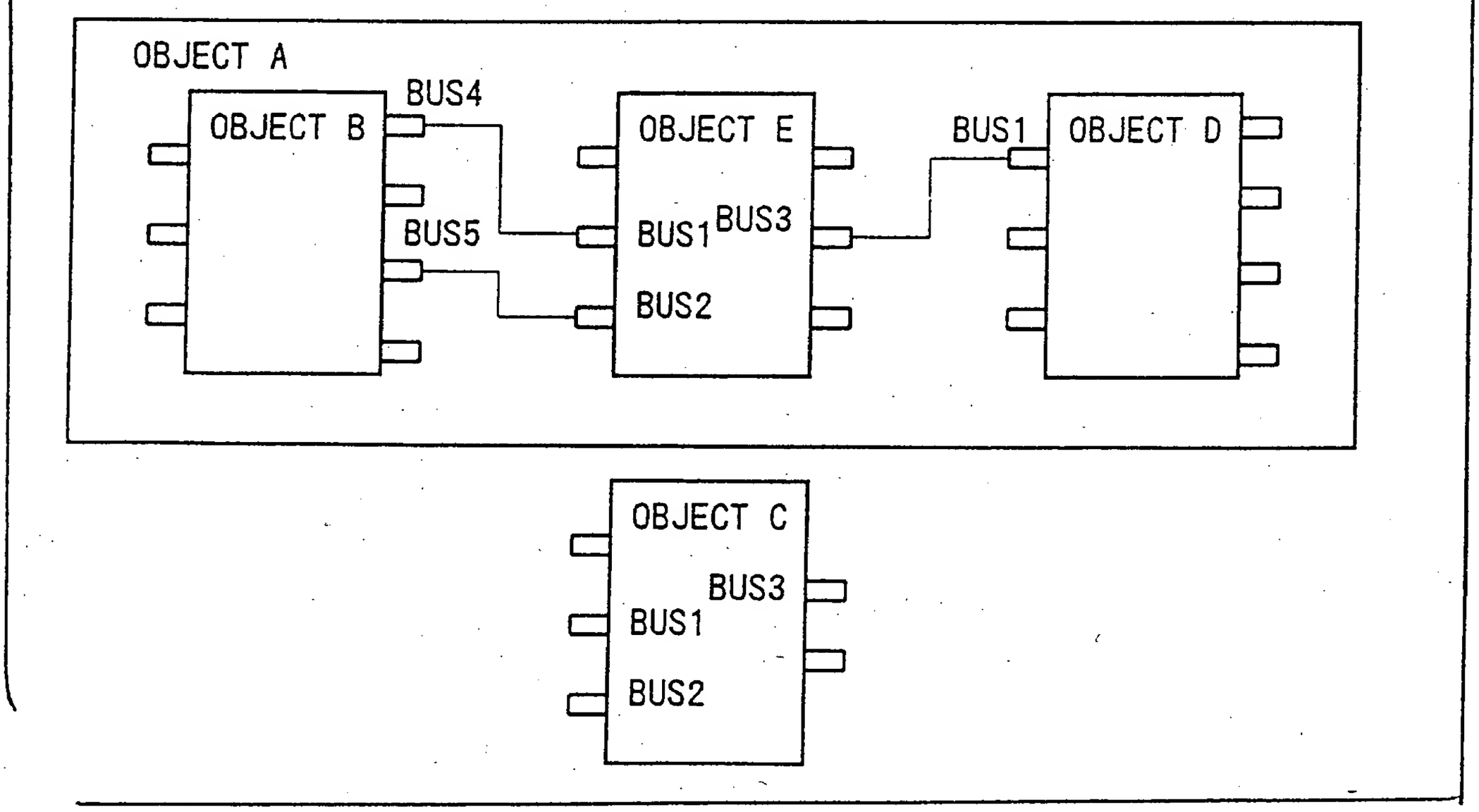


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Fig.78

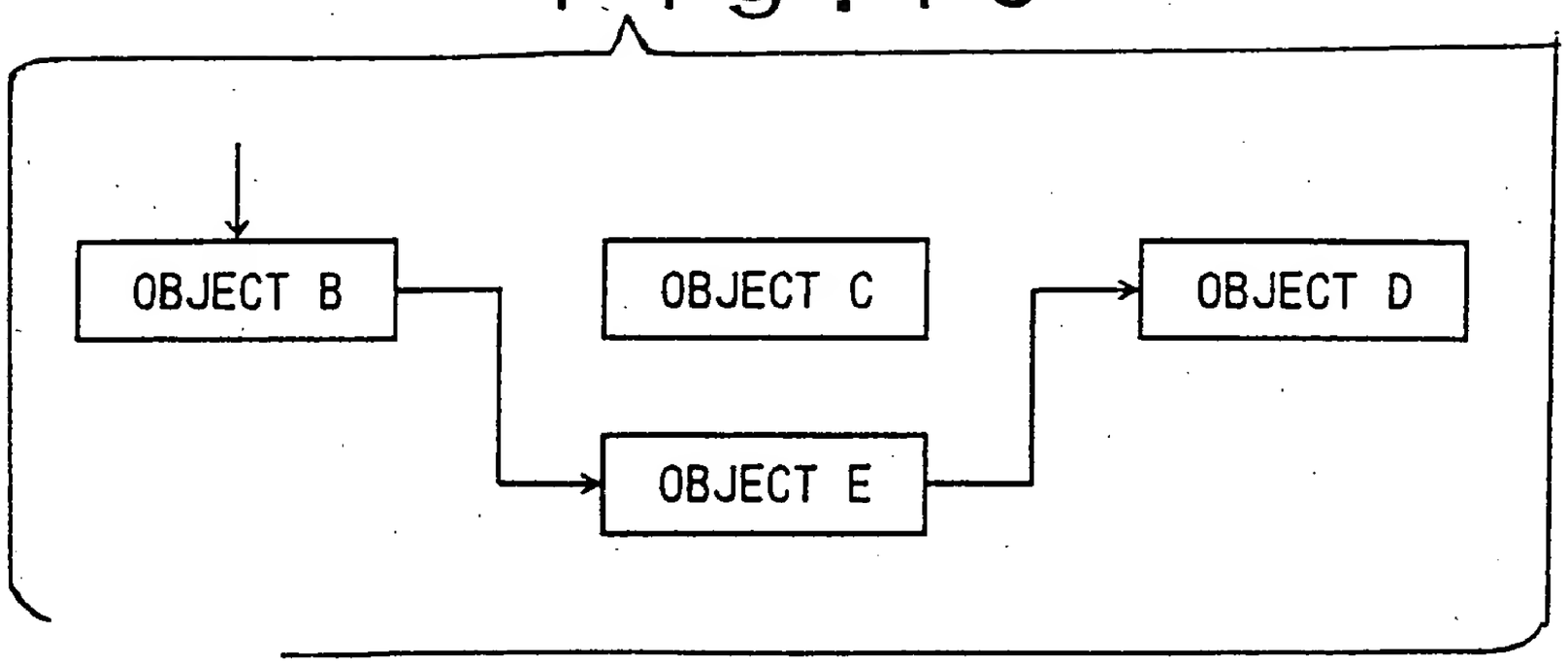
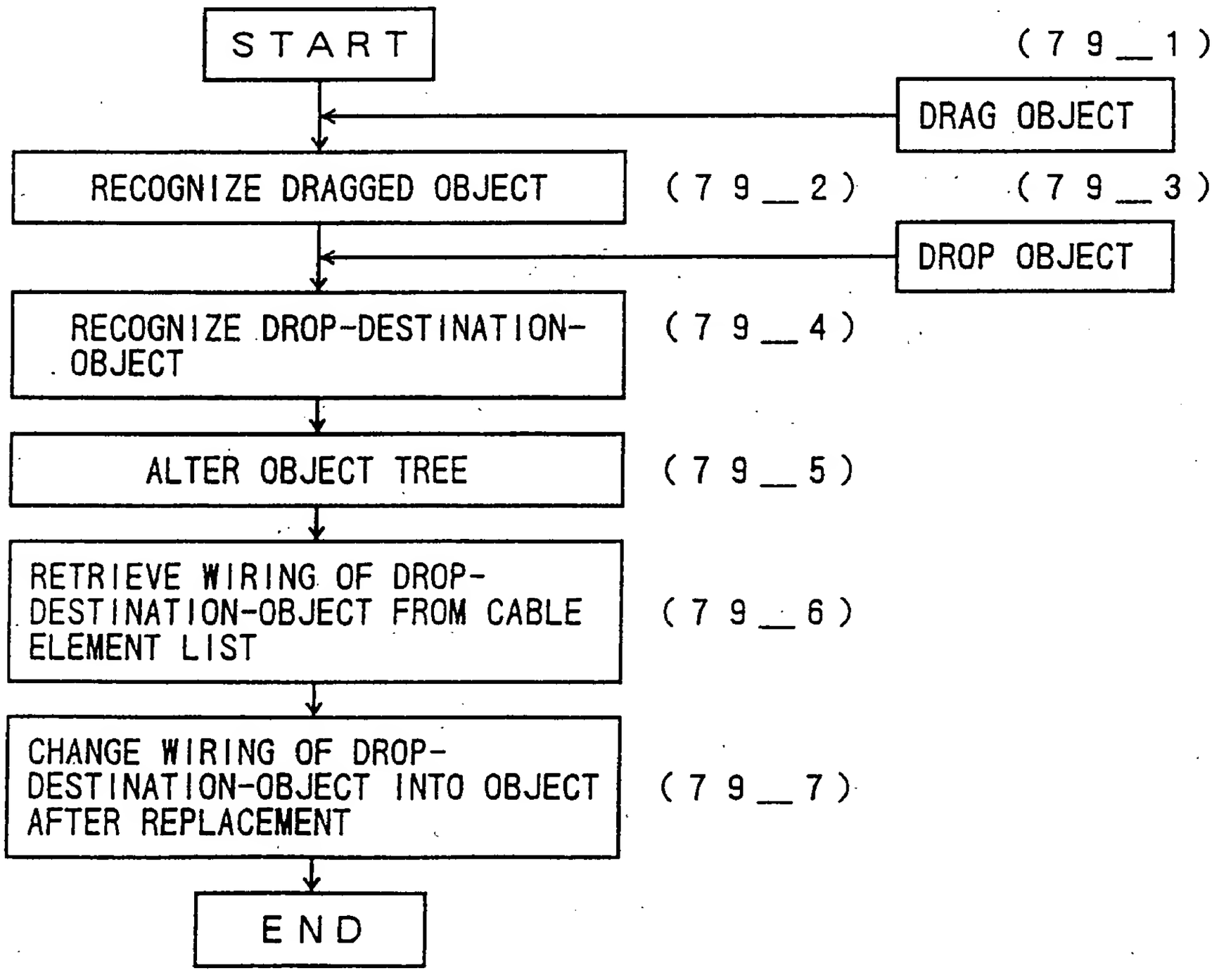
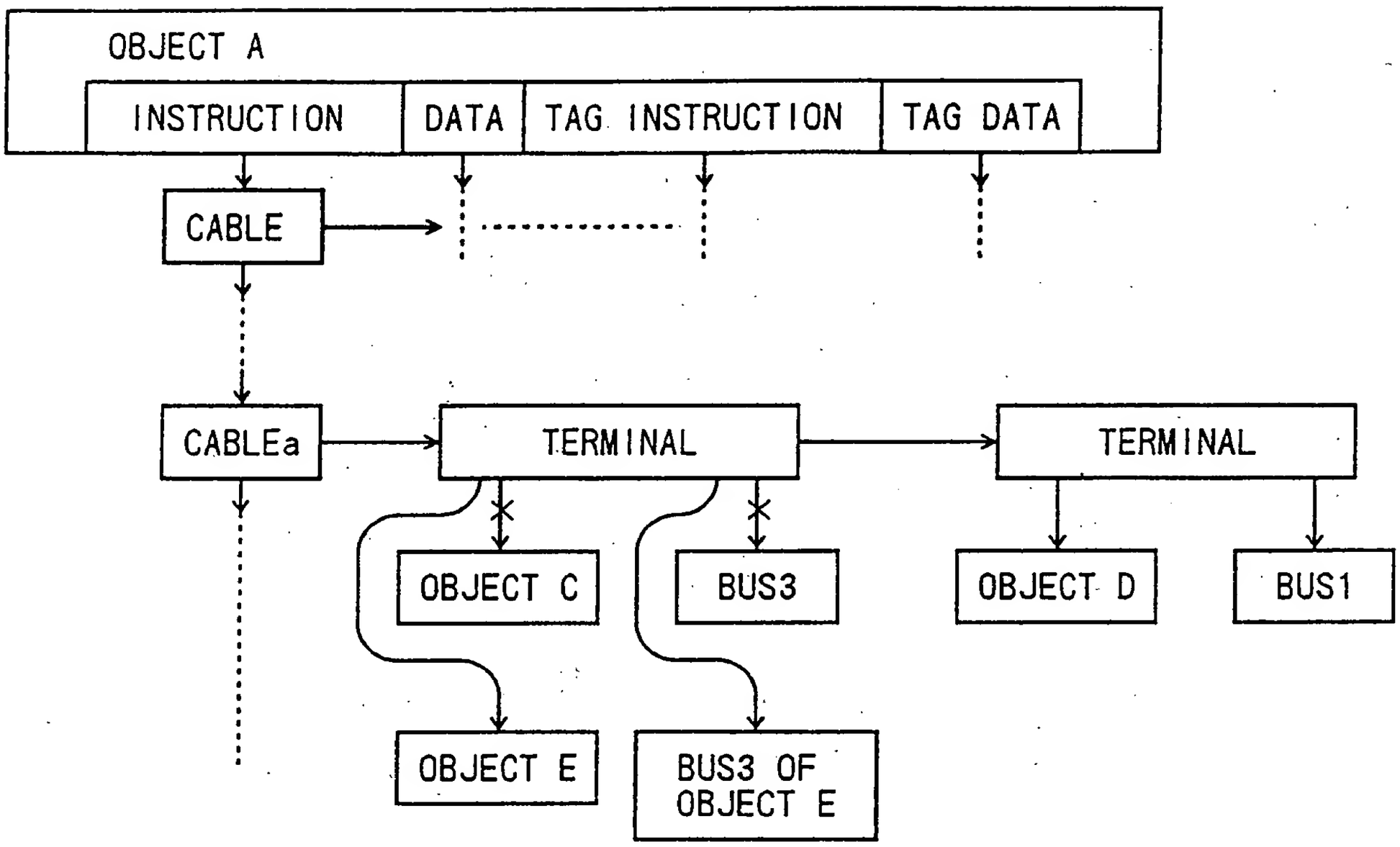


Fig.79



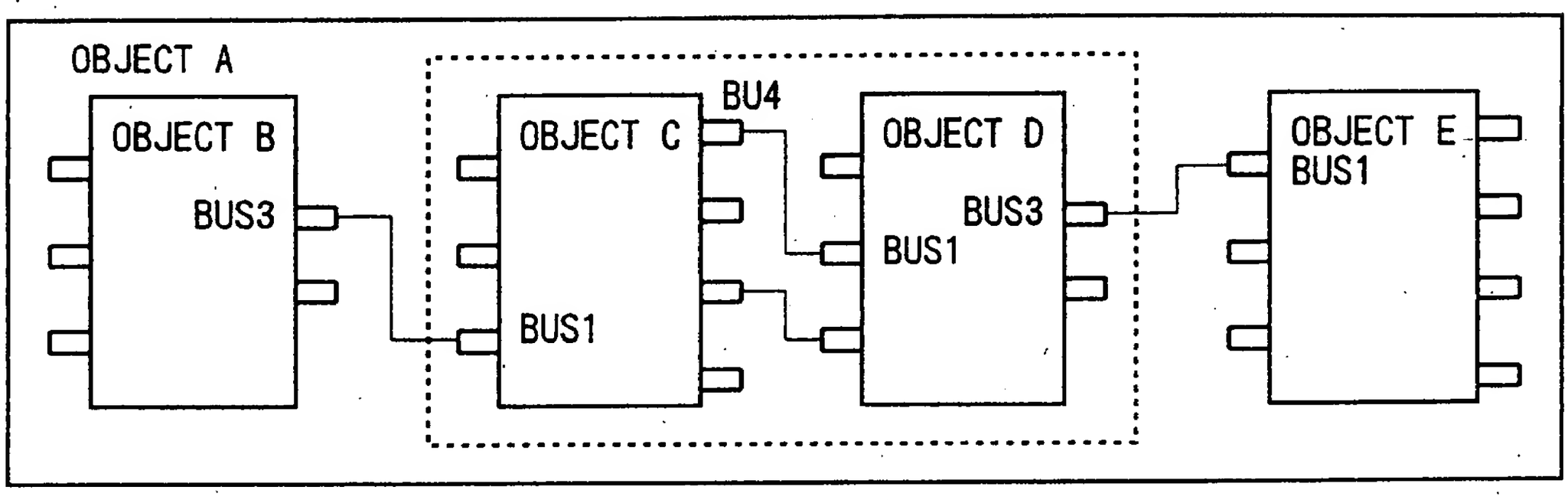
Copied - Obsolete

Fig. 80



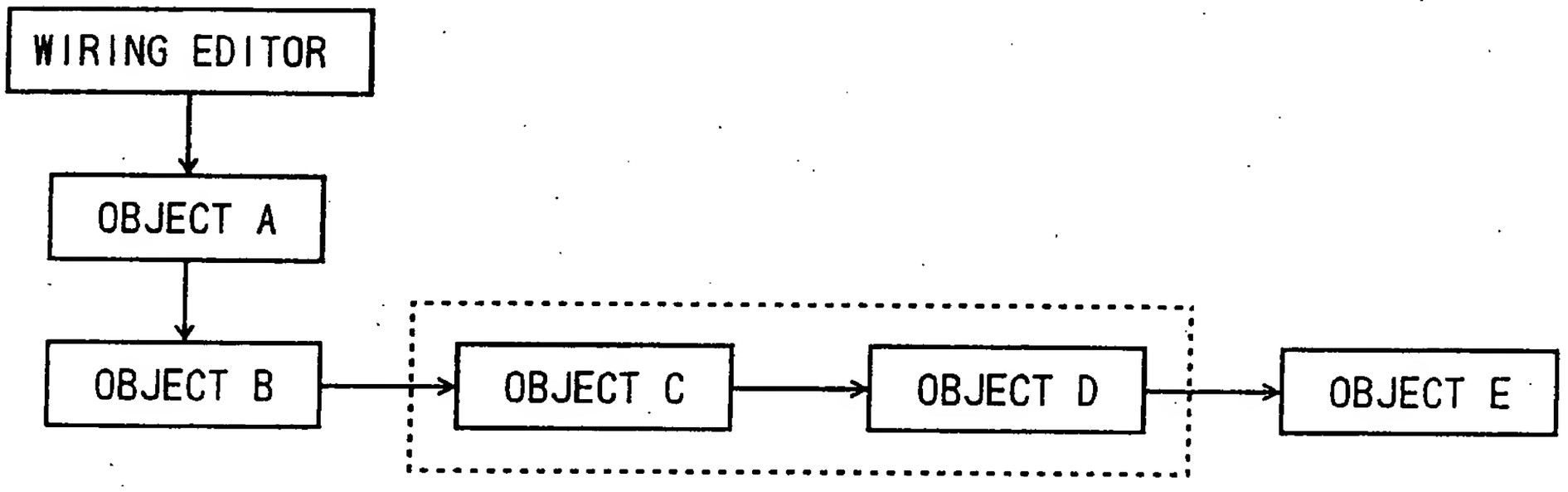
Translation - Dec 15, 2004

Fig.81



10/05/2004 - 09:14:01

Fig. 82



Document - 0000000

Fig.83

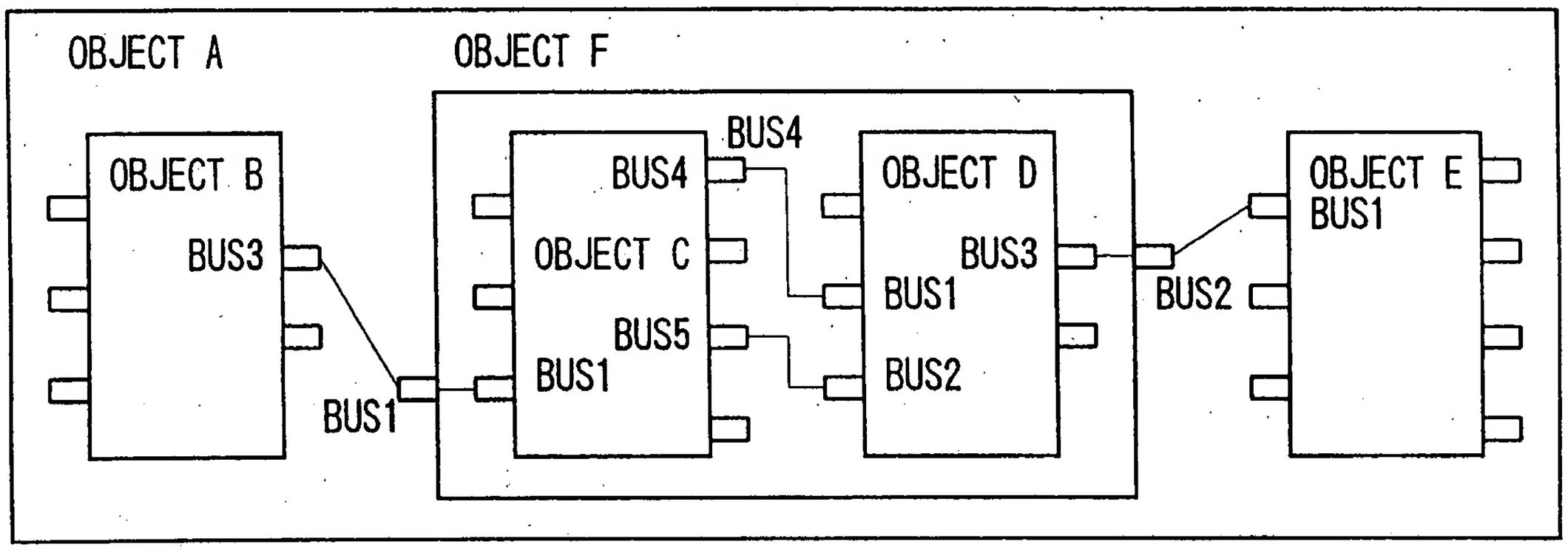
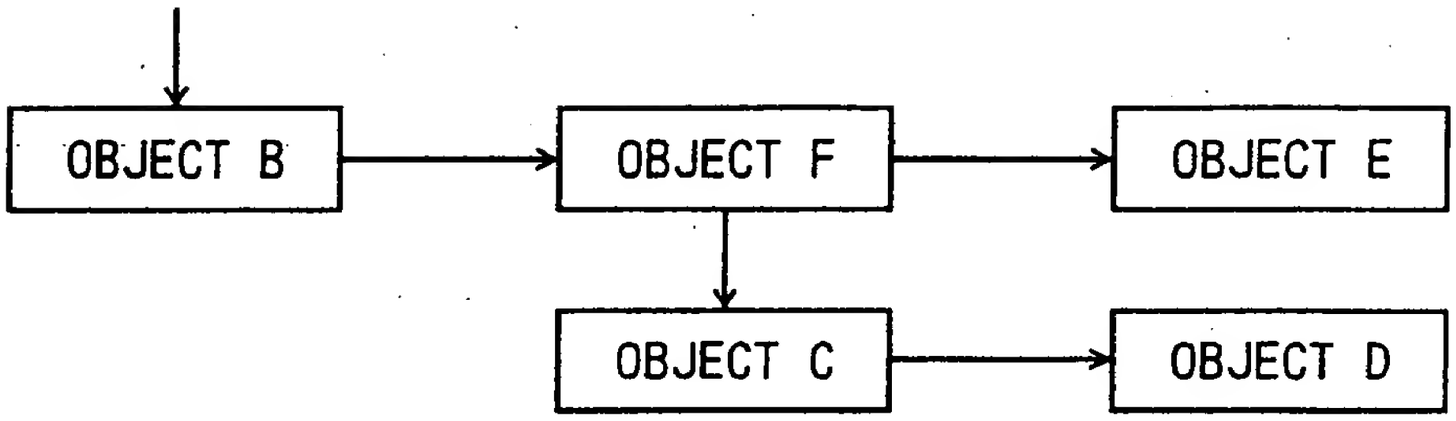
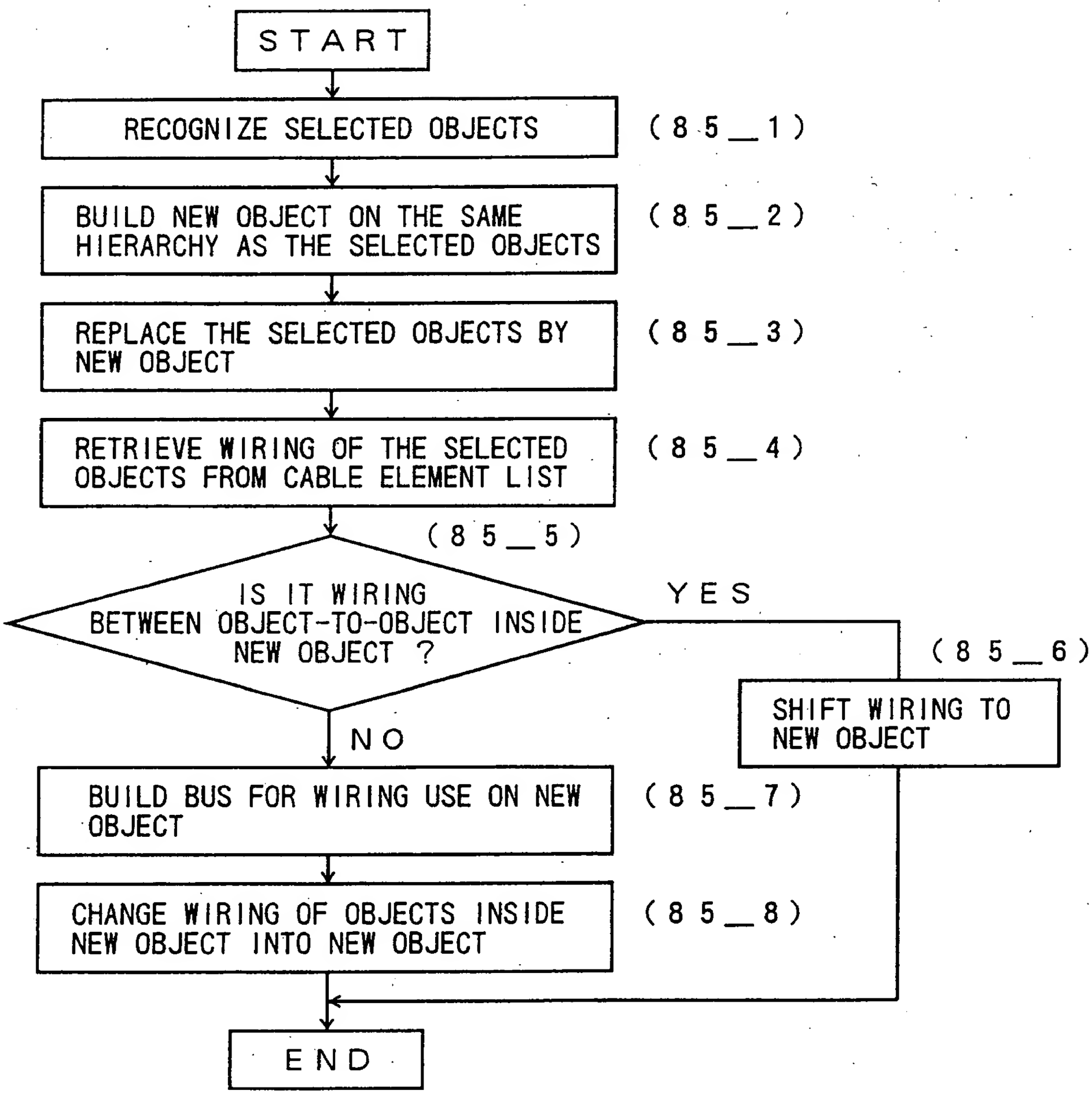

OBJECT A
OBJECT F
OBJECT B
BUS3
BUS1
BUS4
BUS4
OBJECT C
BUS5
BUS1
BUS4
OBJECT D
BUS3
BUS1
BUS2
BUS2
OBJECT E
BUS1

Fig. 84



Document - 0064.pdf

Fig.85



0076-0504-0850-0704

Fig.86

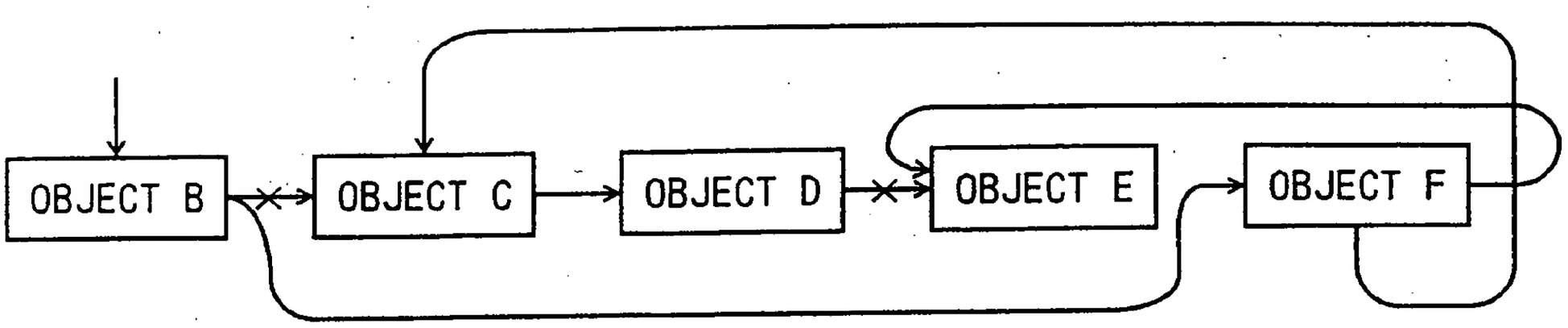

OBJECT B
OBJECT C
OBJECT D
OBJECT E
OBJECT F

Fig.87

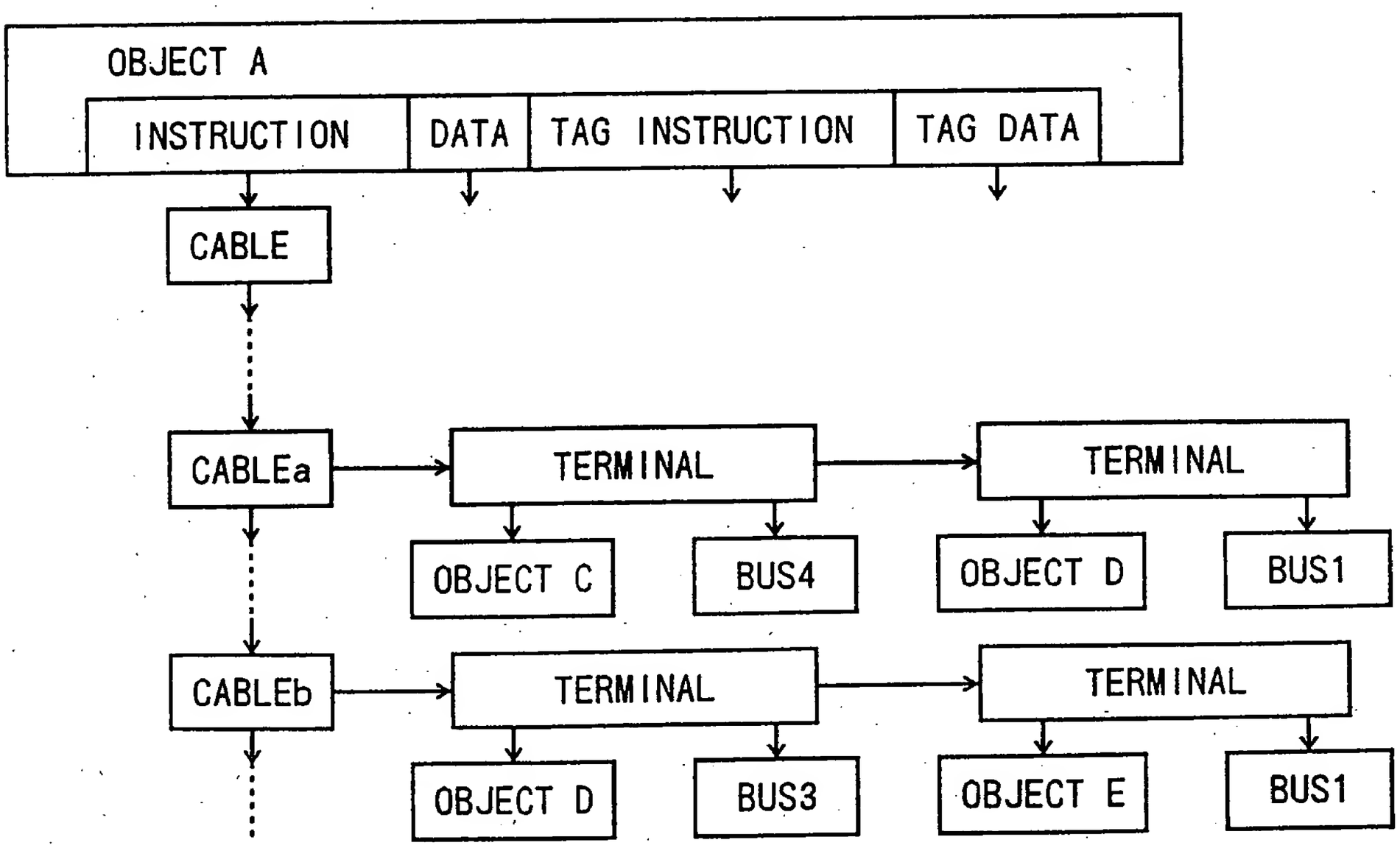

OBJECT A
INSTRUCTION
DATA
TAG INSTRUCTION
TAG DATA
CABLE
CABLEa
TERMINAL
TERMINAL
OBJECT C
BUS4
OBJECT D
BUS1
CABLEb
TERMINAL
TERMINAL
OBJECT D
BUS3
OBJECT E
BUS1

Fig.88

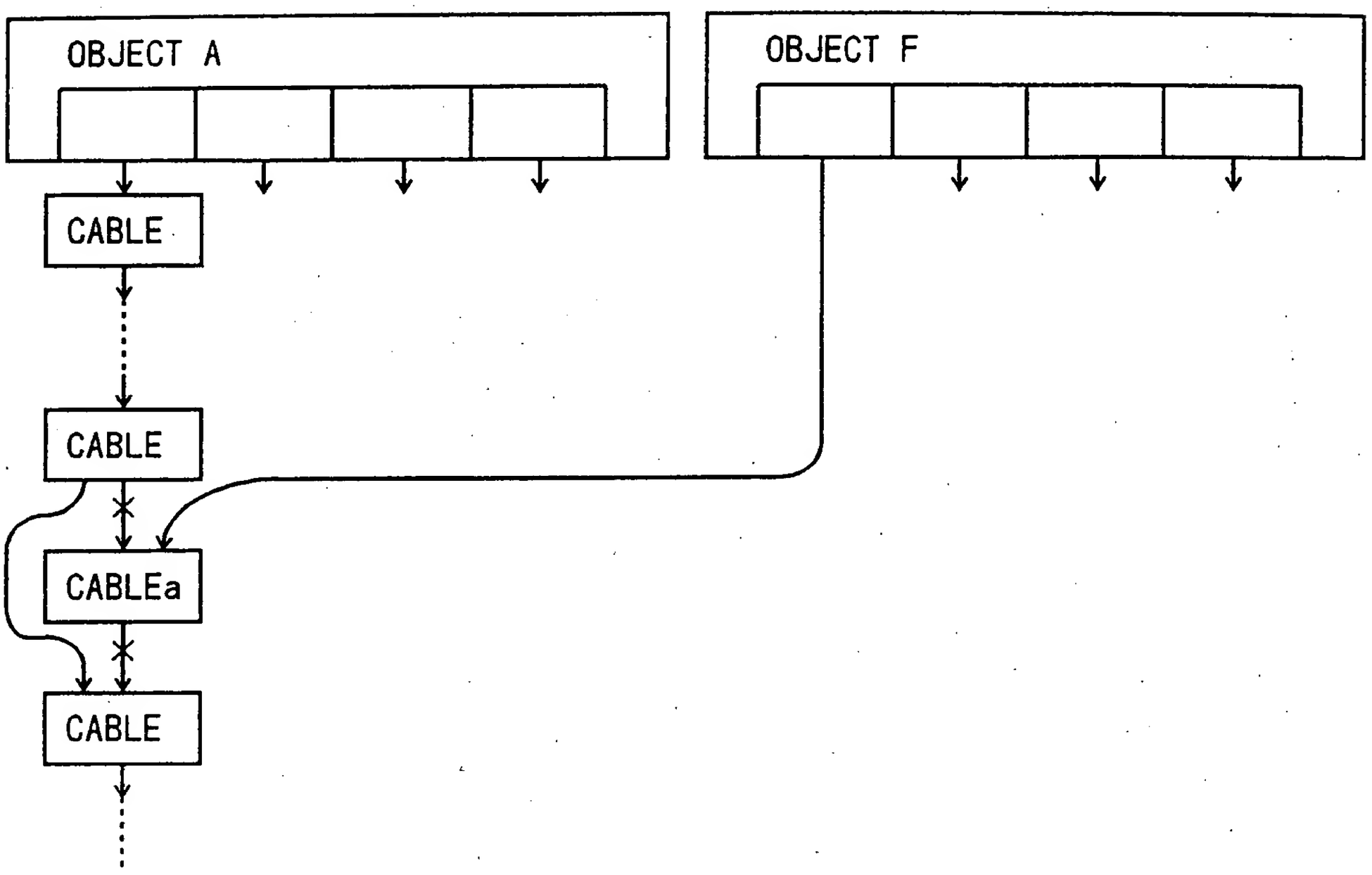

OBJECT A
OBJECT F
CABLE
CABLE
CABLEa
CABLE

Fig.89

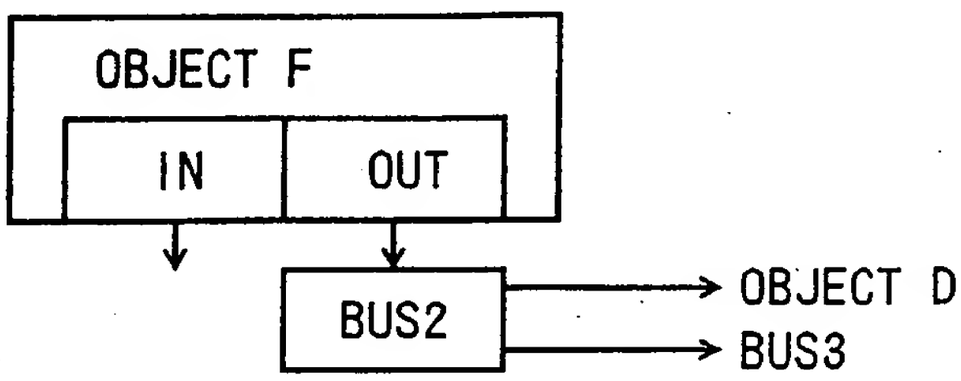

OBJECT F
IN
OUT
BUS2
OBJECT D
BUS3

Fig.90

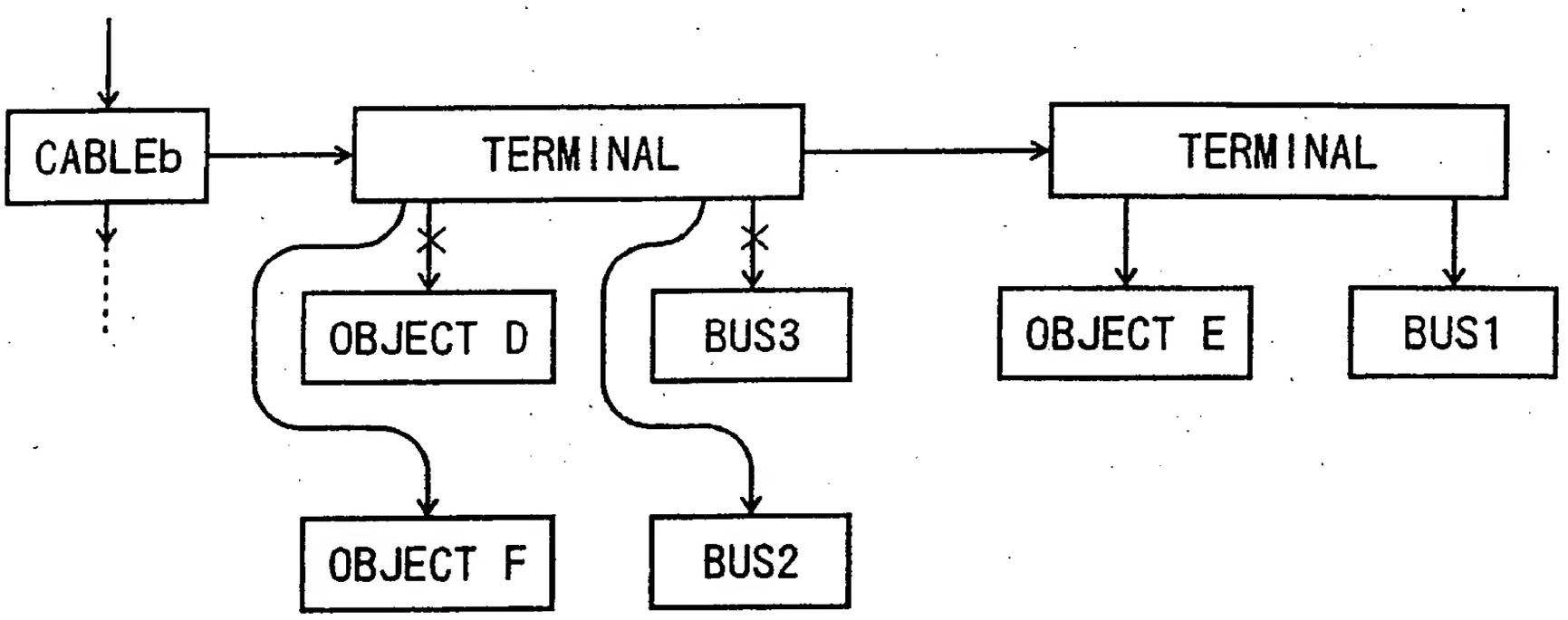
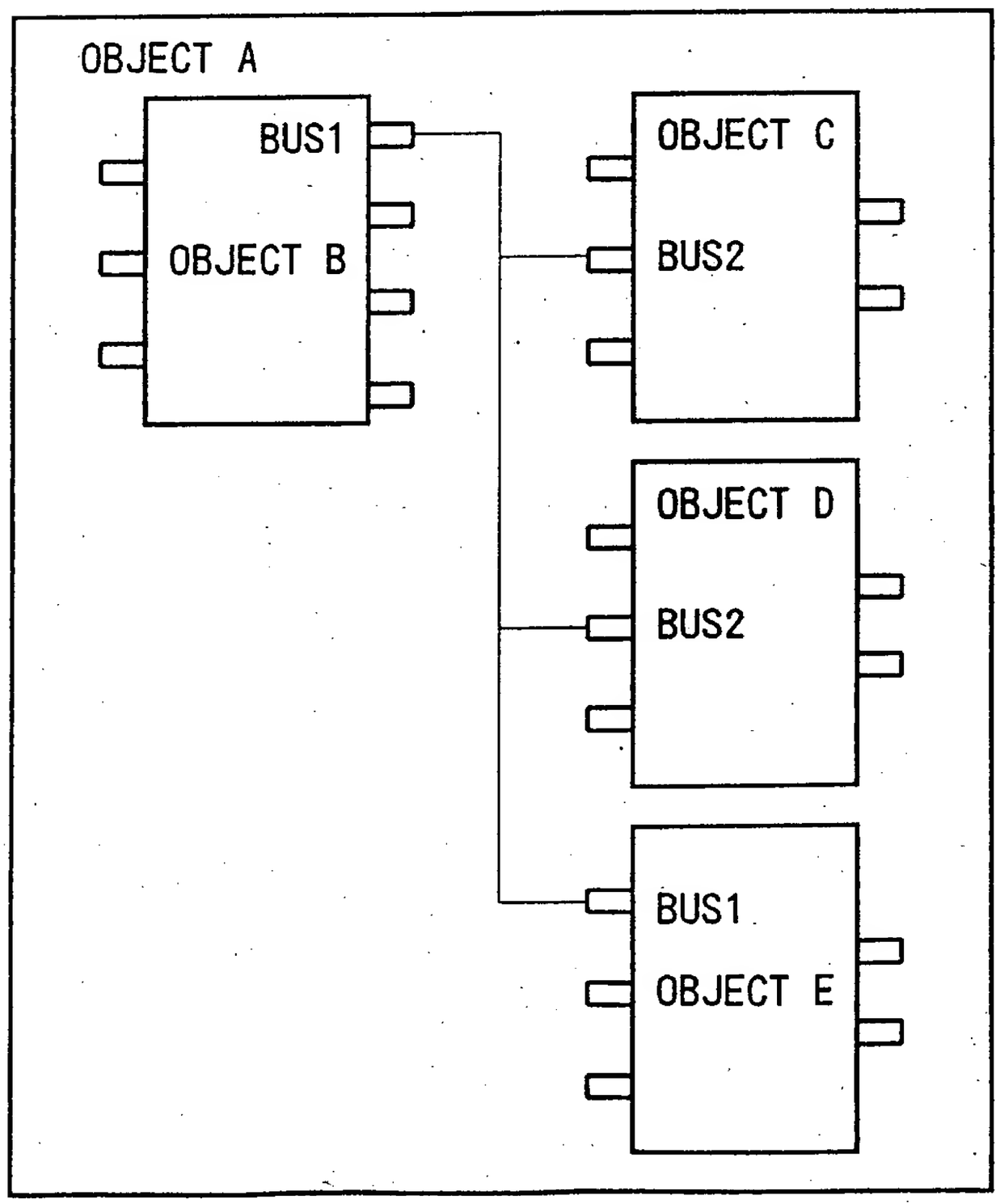
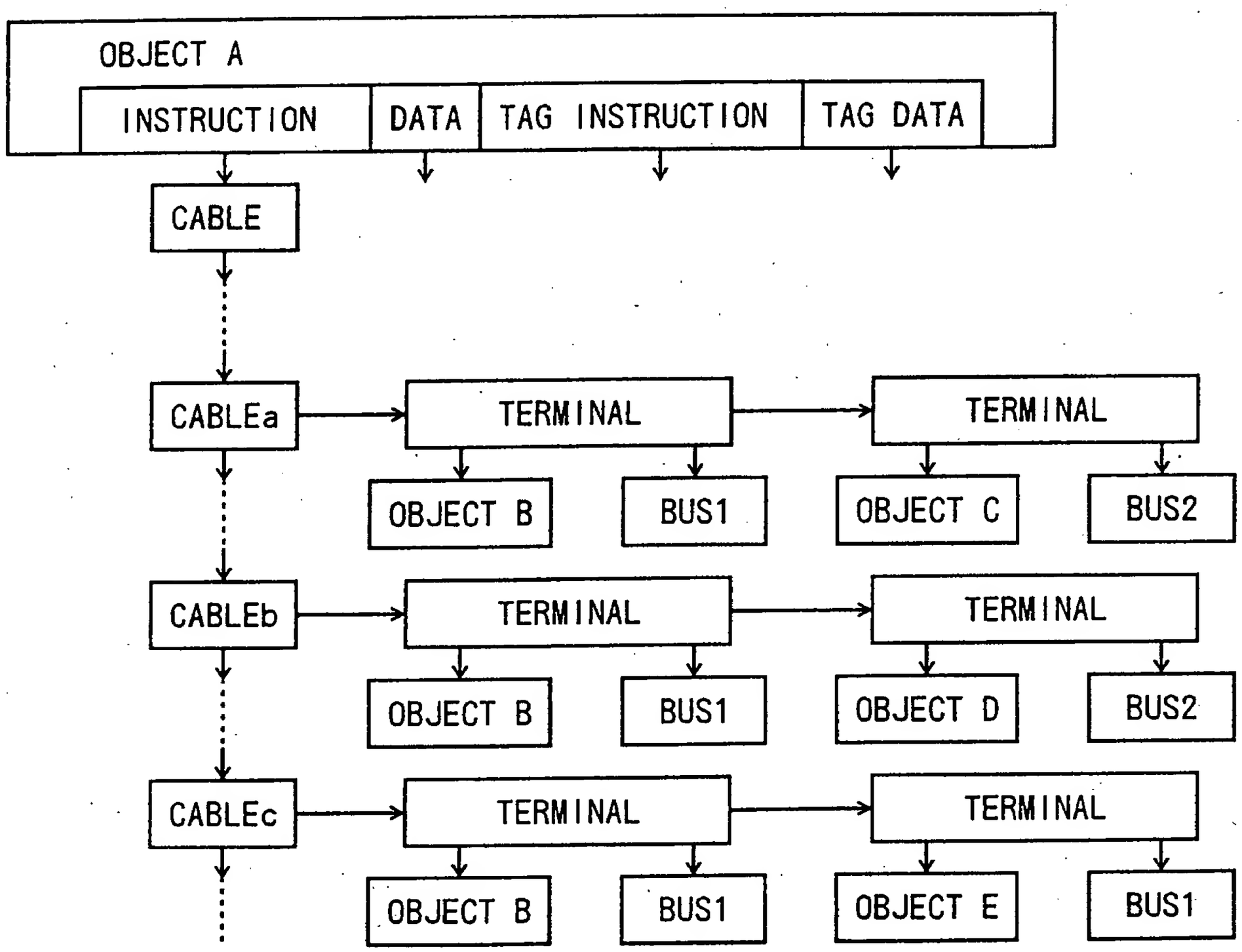


Fig.91



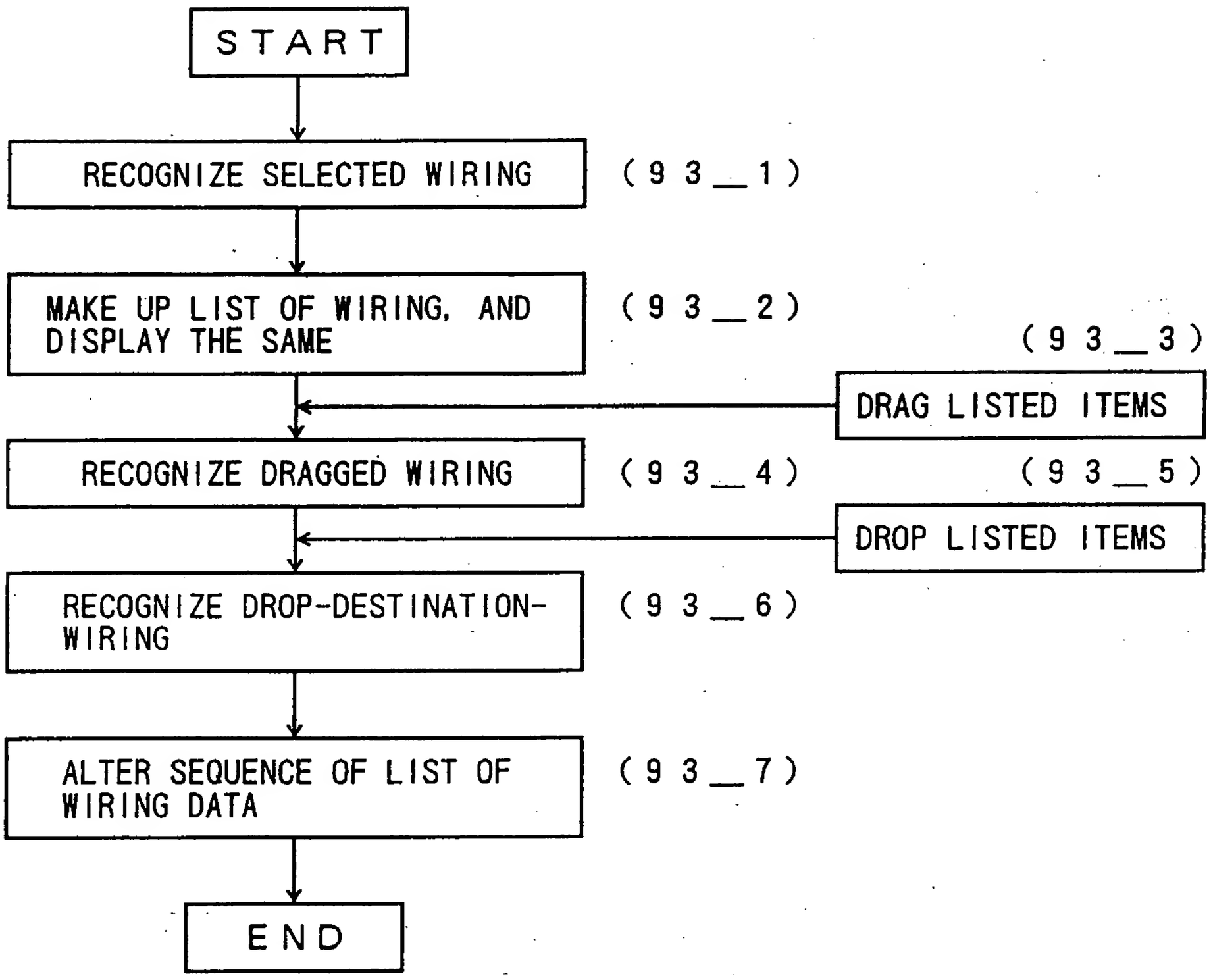
Posted: 05/04/2000

Fig. 92



Docket - Doc0000

Fig. 93



Patent Application Publication Oct. 9, 2003

Fig.94

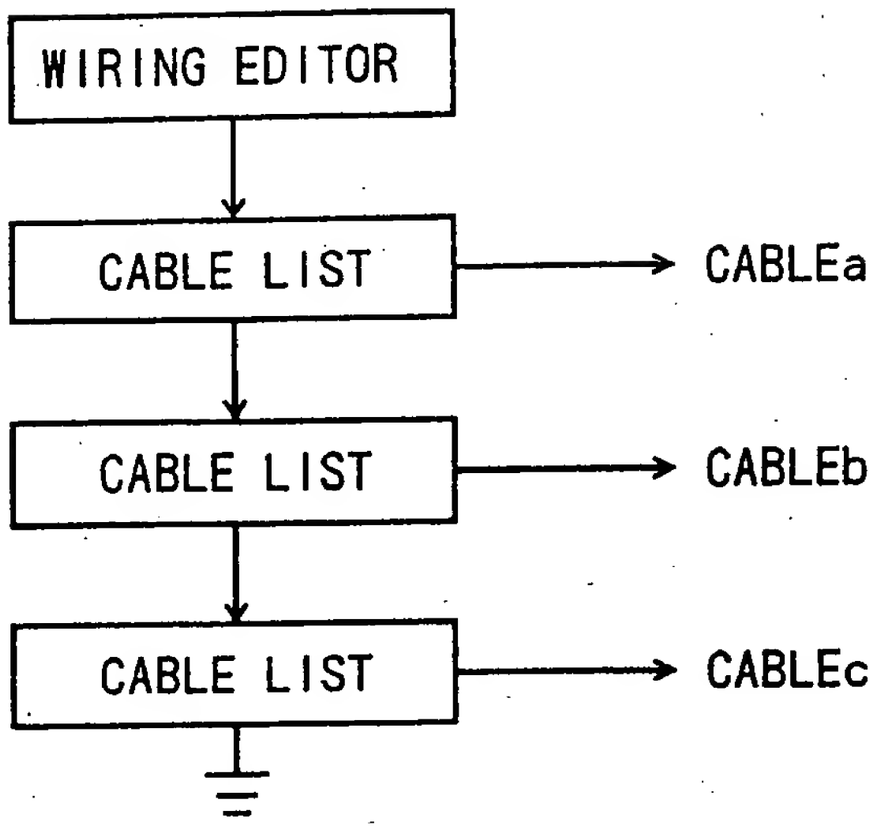
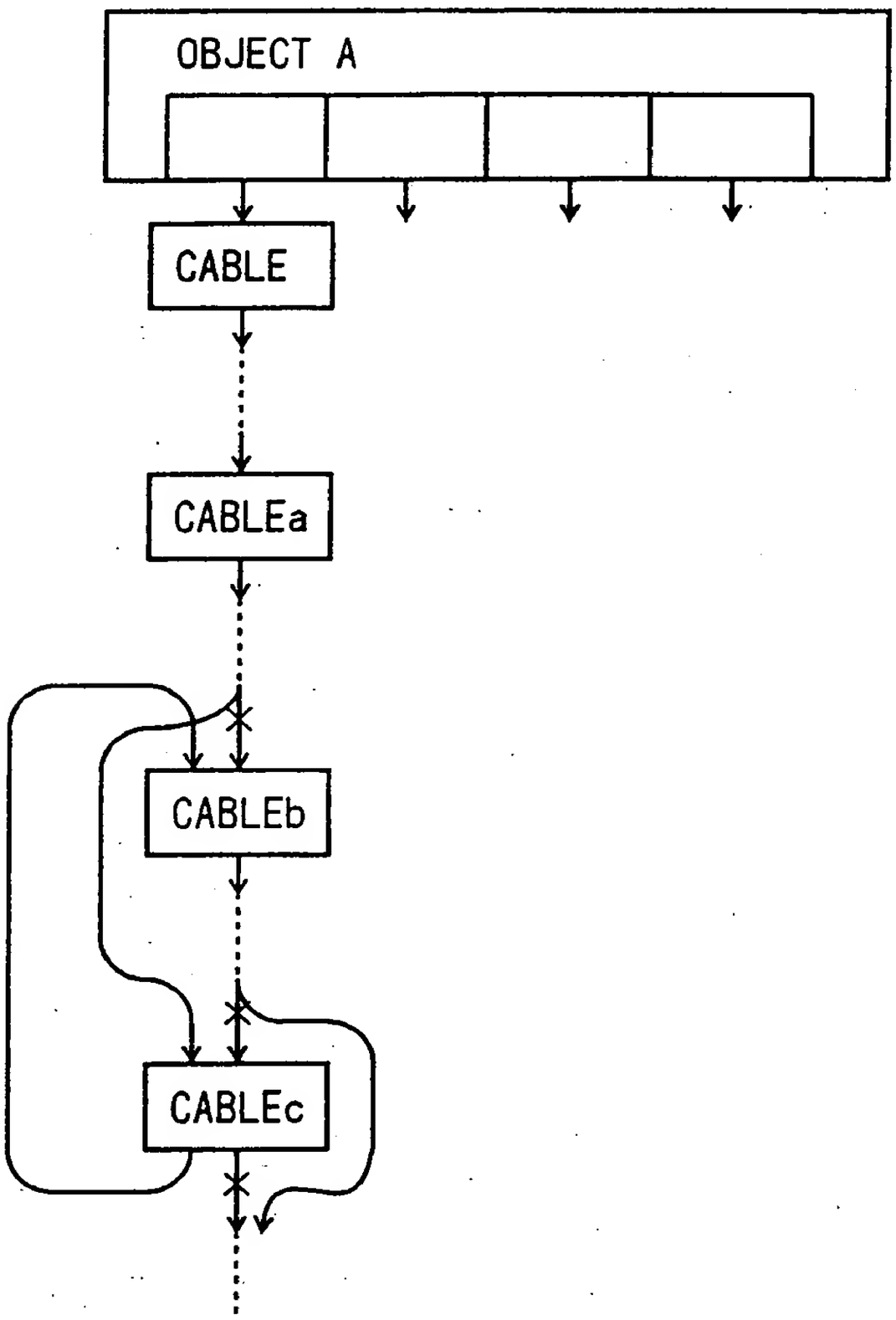


Fig.95

OBJECT B : BUS1	OBJECT C : BUS2
OBJECT B : BUS1	OBJECT D : BUS2
OBJECT B : BUS1	OBJECT E : BUS1

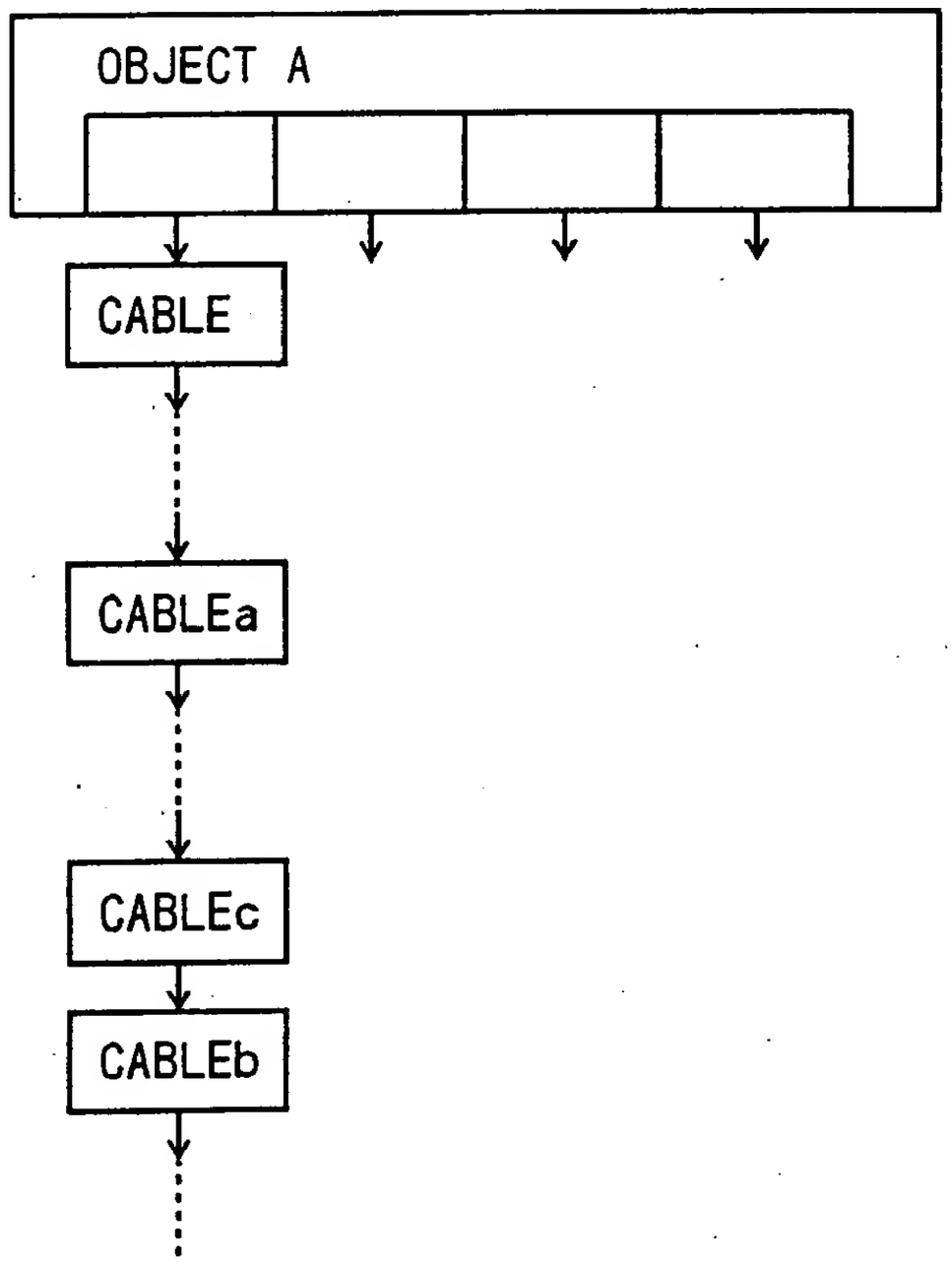
FOR REVIEW PURPOSES ONLY

Fig.96



Document - 0504040

Fig.97



TOCETO' OEHYSDGD

Fig.98

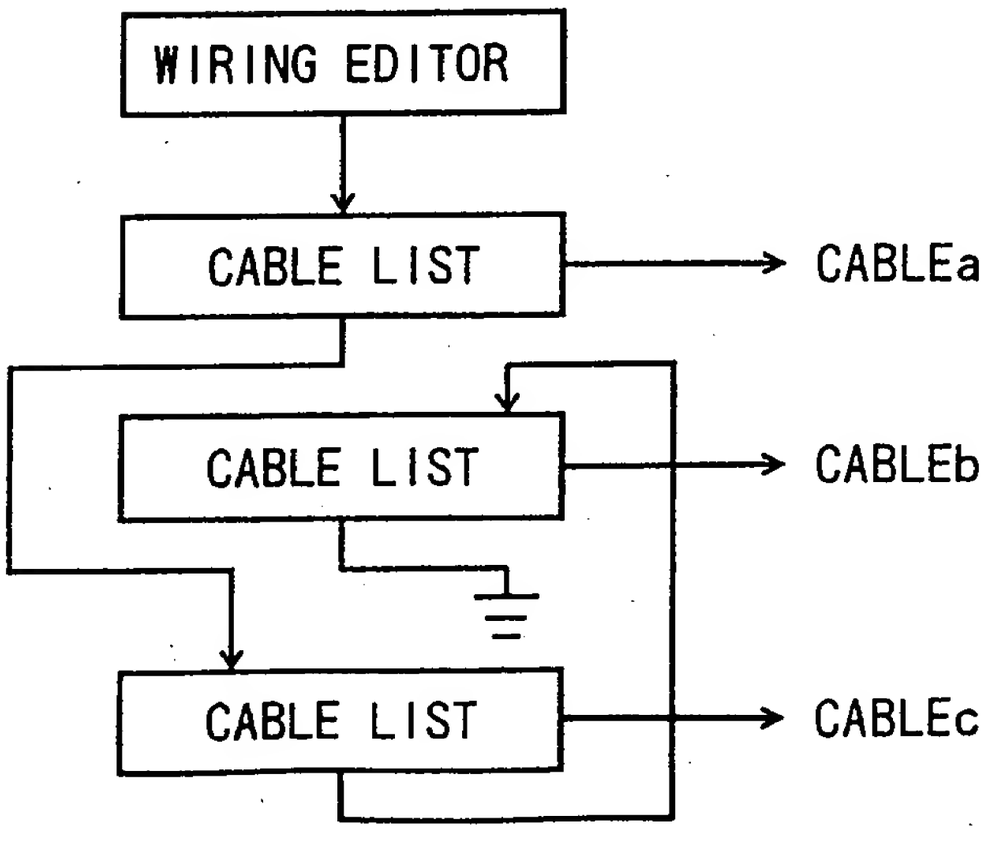


Fig.99

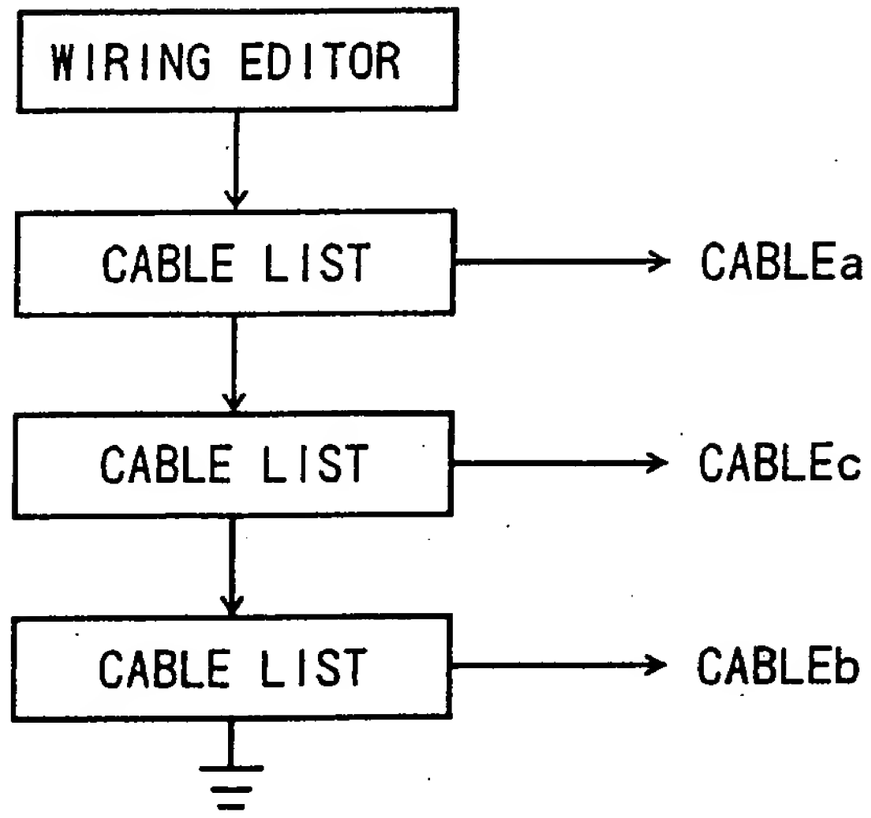


Fig.100

OBJECT B : BUS1	OBJECT C : BUS2
OBJECT B : BUS1	OBJECT E : BUS1
OBJECT B : BUS1	OBJECT D : BUS2

JP2001-067400-A "Machine Translation"

Fig.101

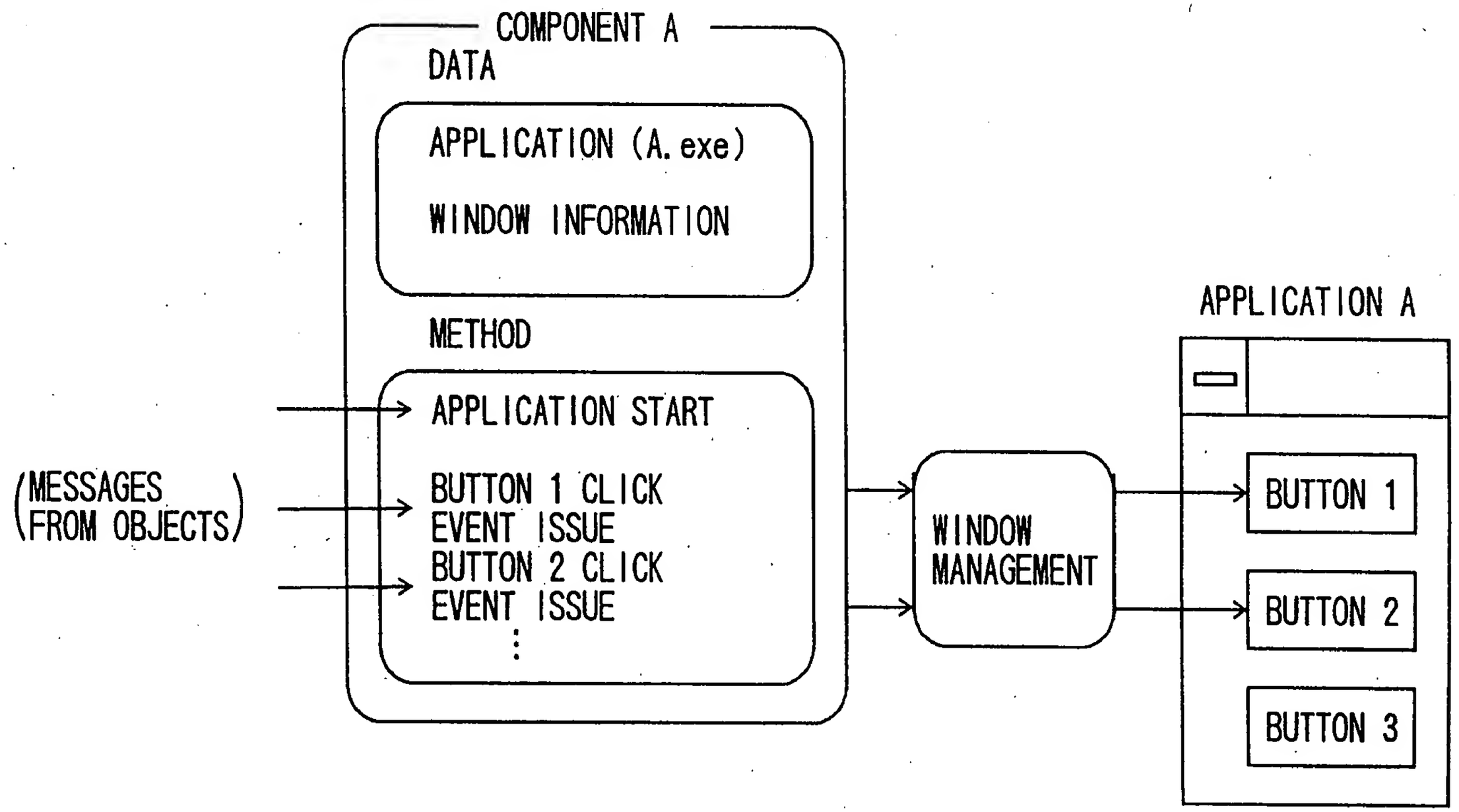

COMPONENT A
DATA
APPLICATION (A.exe)
WINDOW INFORMATION
METHOD
APPLICATION START
BUTTON 1 CLICK
EVENT ISSUE
BUTTON 2 CLICK
EVENT ISSUE
(MESSAGES FROM OBJECTS)
WINDOW MANAGEMENT
APPLICATION A
BUTTON 1
BUTTON 2
BUTTON 3

Fig.102

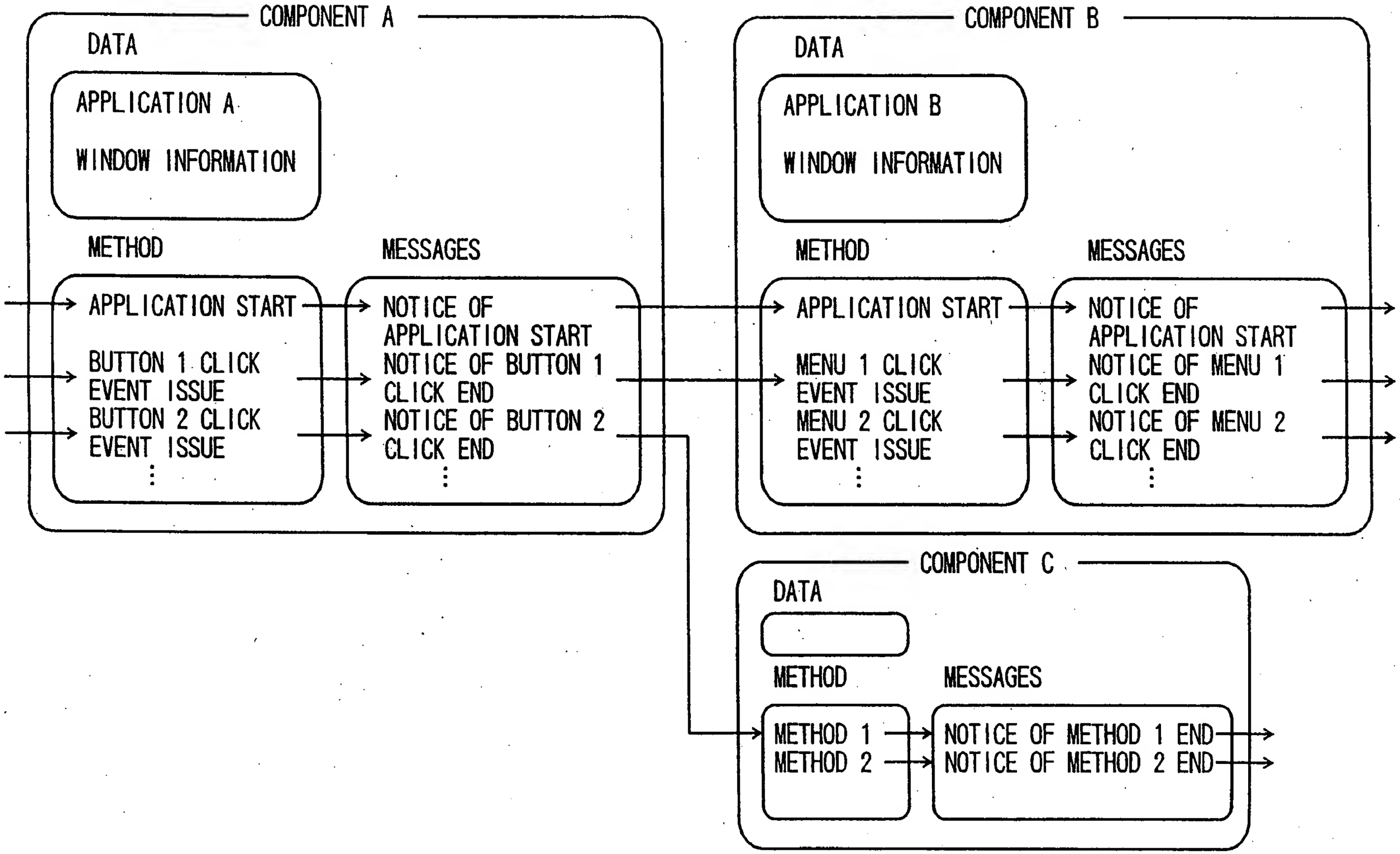
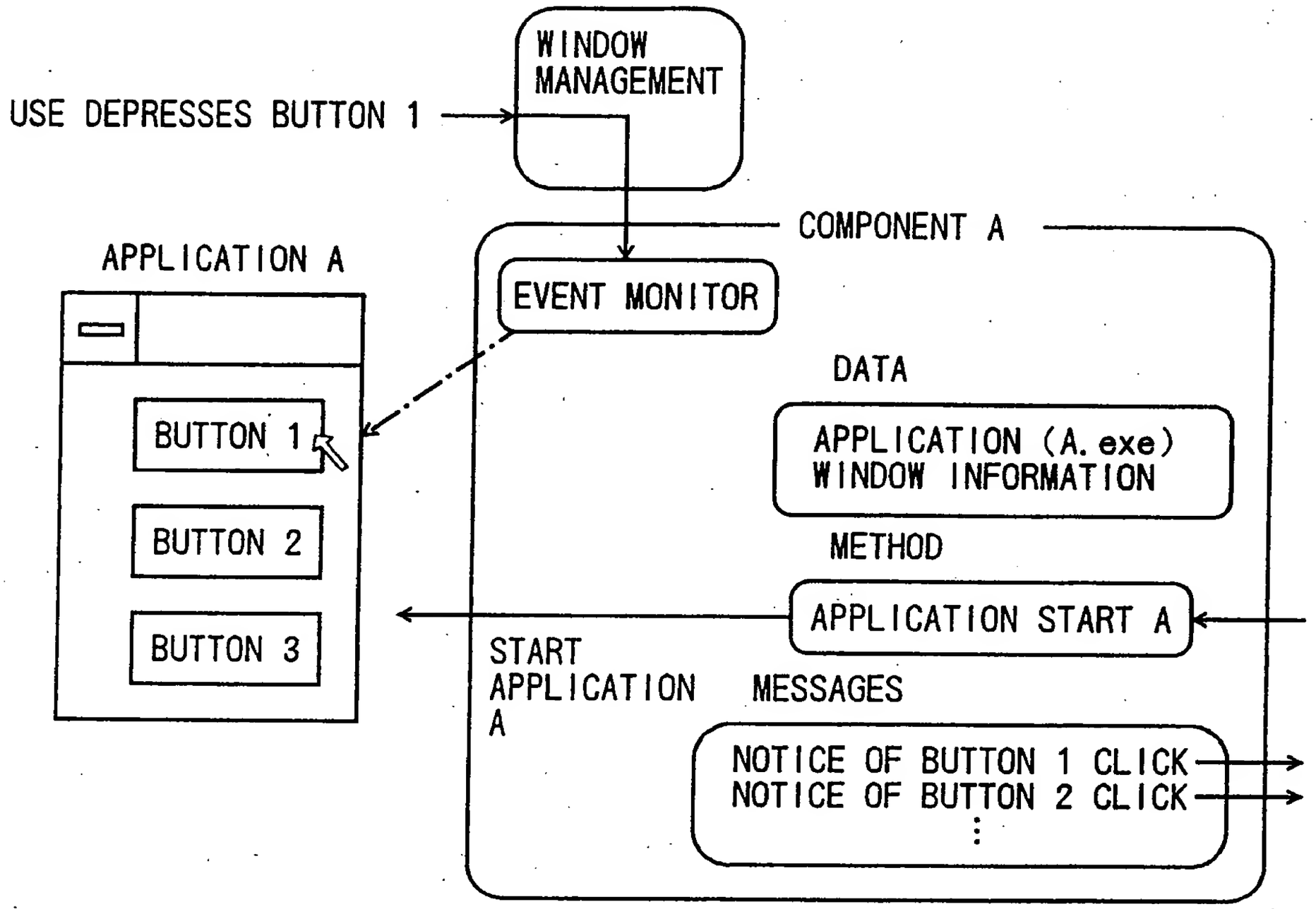

COMPONENT A
DATA
APPLICATION A
WINDOW INFORMATION
METHOD
APPLICATION START
BUTTON 1 CLICK EVENT ISSUE
BUTTON 2 CLICK EVENT ISSUE
MESSAGES
NOTICE OF APPLICATION START
NOTICE OF BUTTON 1 CLICK END
NOTICE OF BUTTON 2 CLICK END
COMPONENT B
DATA
APPLICATION B
WINDOW INFORMATION
METHOD
APPLICATION START
MENU 1 CLICK EVENT ISSUE
MENU 2 CLICK EVENT ISSUE
MESSAGES
NOTICE OF APPLICATION START
NOTICE OF MENU 1 CLICK END
NOTICE OF MENU 2 CLICK END
COMPONENT C
DATA
METHOD
METHOD 1
METHOD 2
MESSAGES
NOTICE OF METHOD 1 END
NOTICE OF METHOD 2 END

Fig.103



EPSON-DENSO/SAP

Fig.104

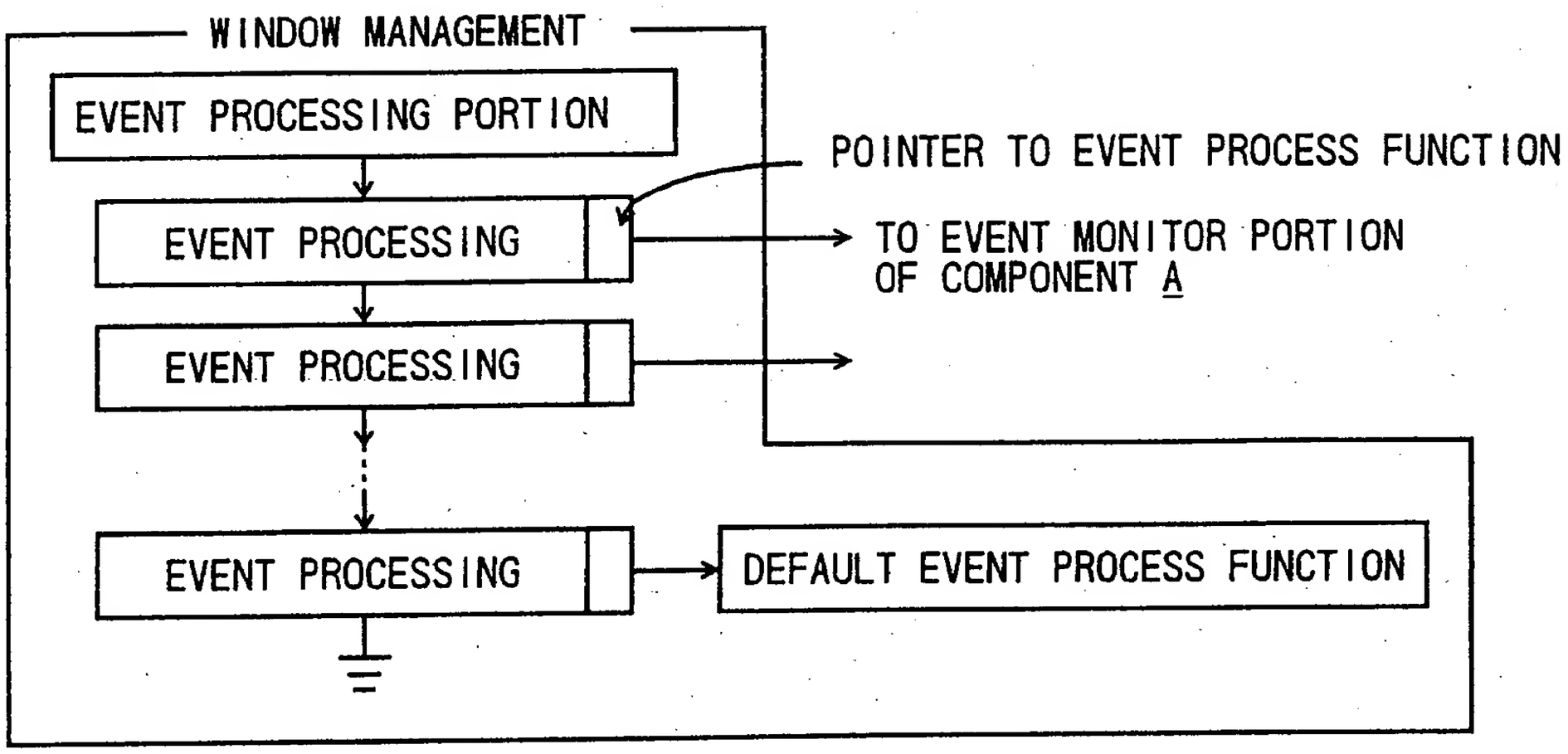


Fig.105

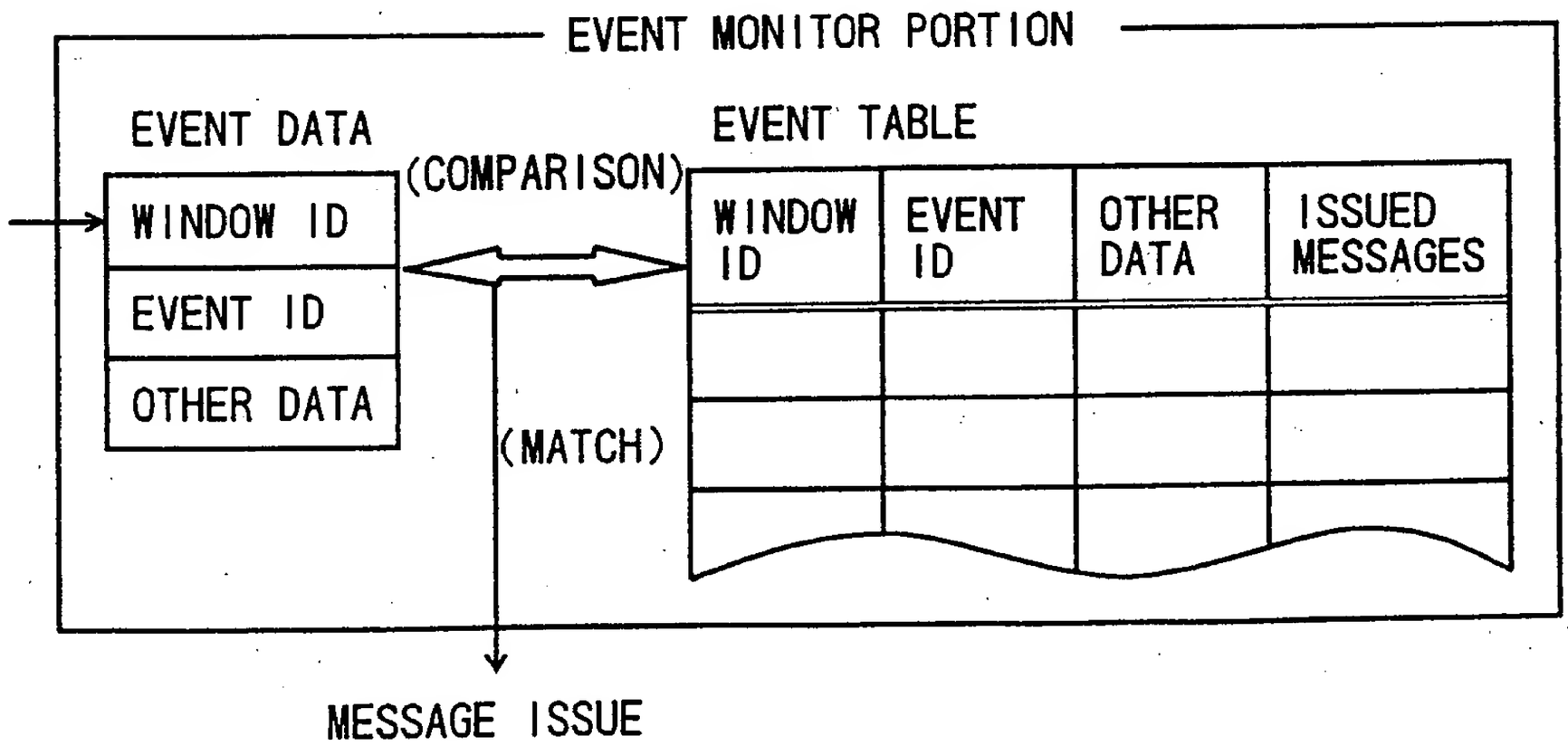


Fig.106

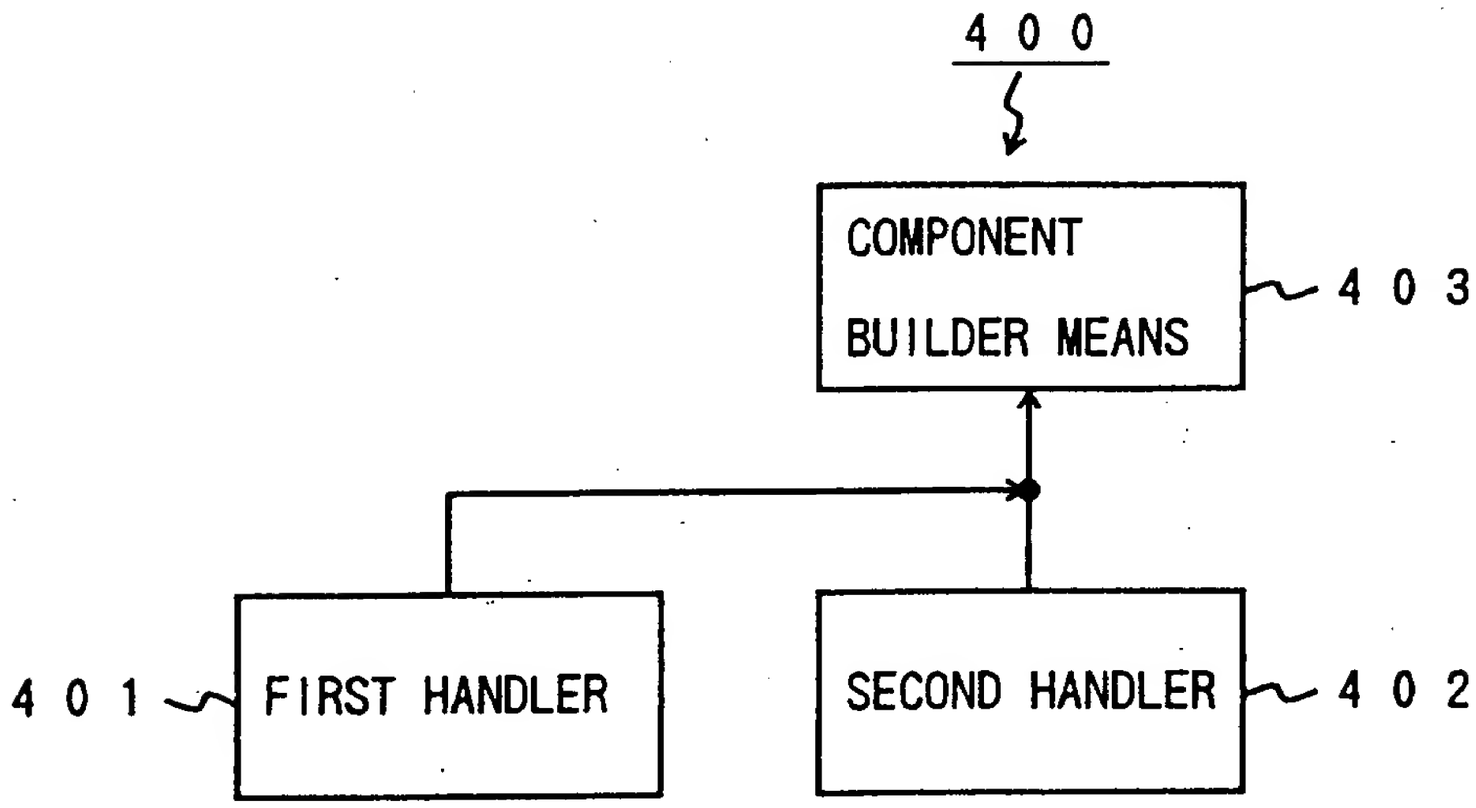


Fig.107

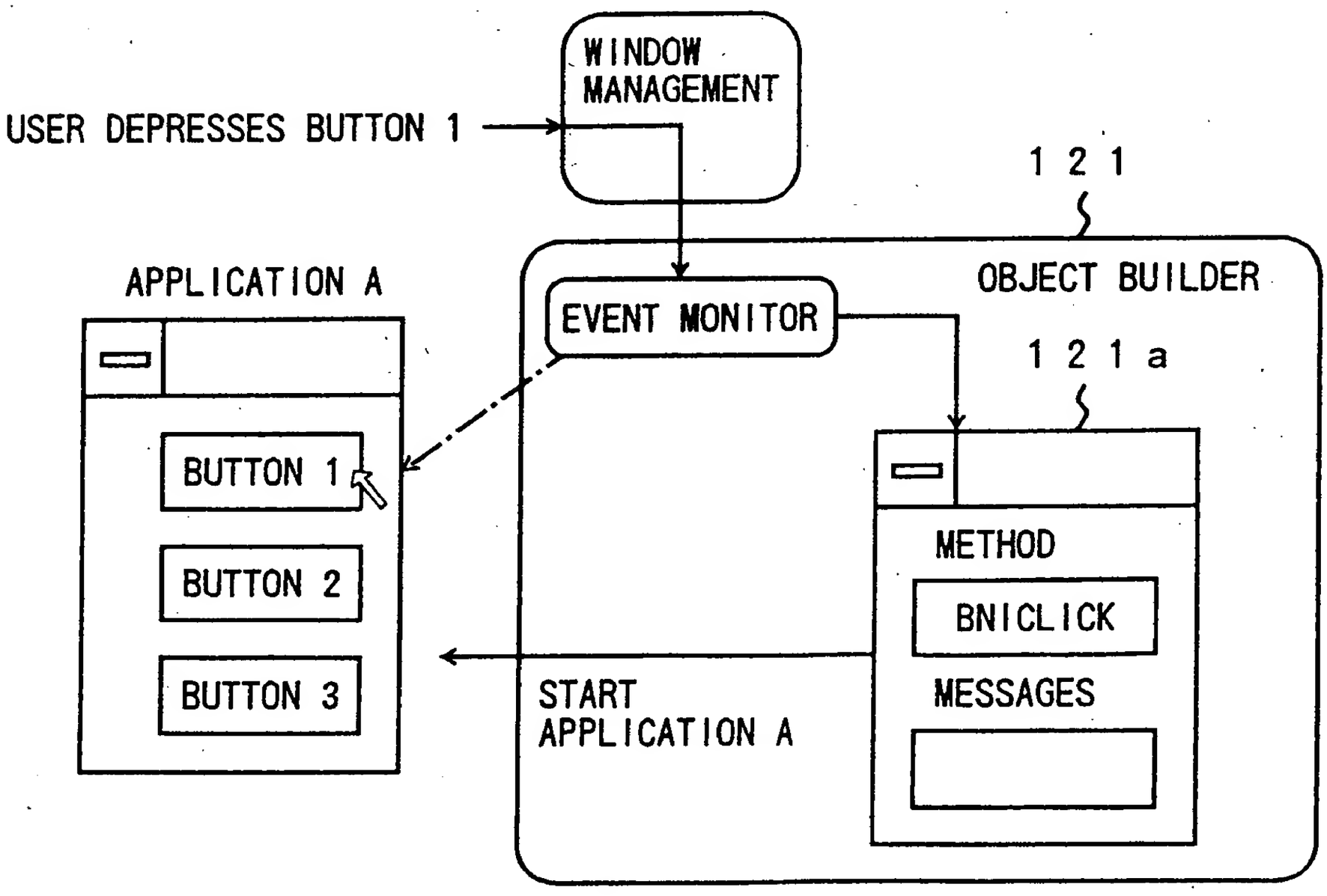
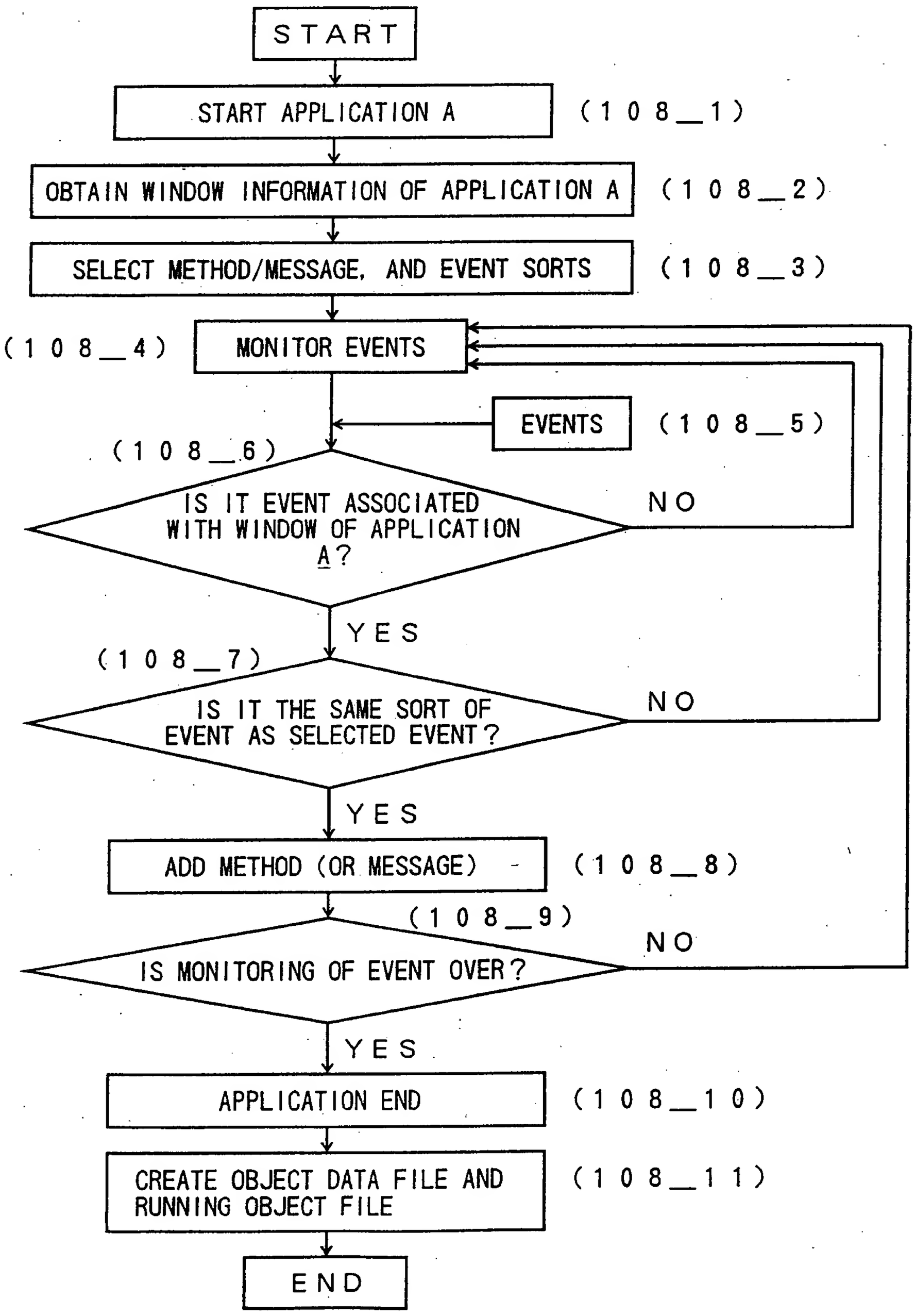


Fig.108



FOREIGN PCT/JP2004/015950

Fig.109

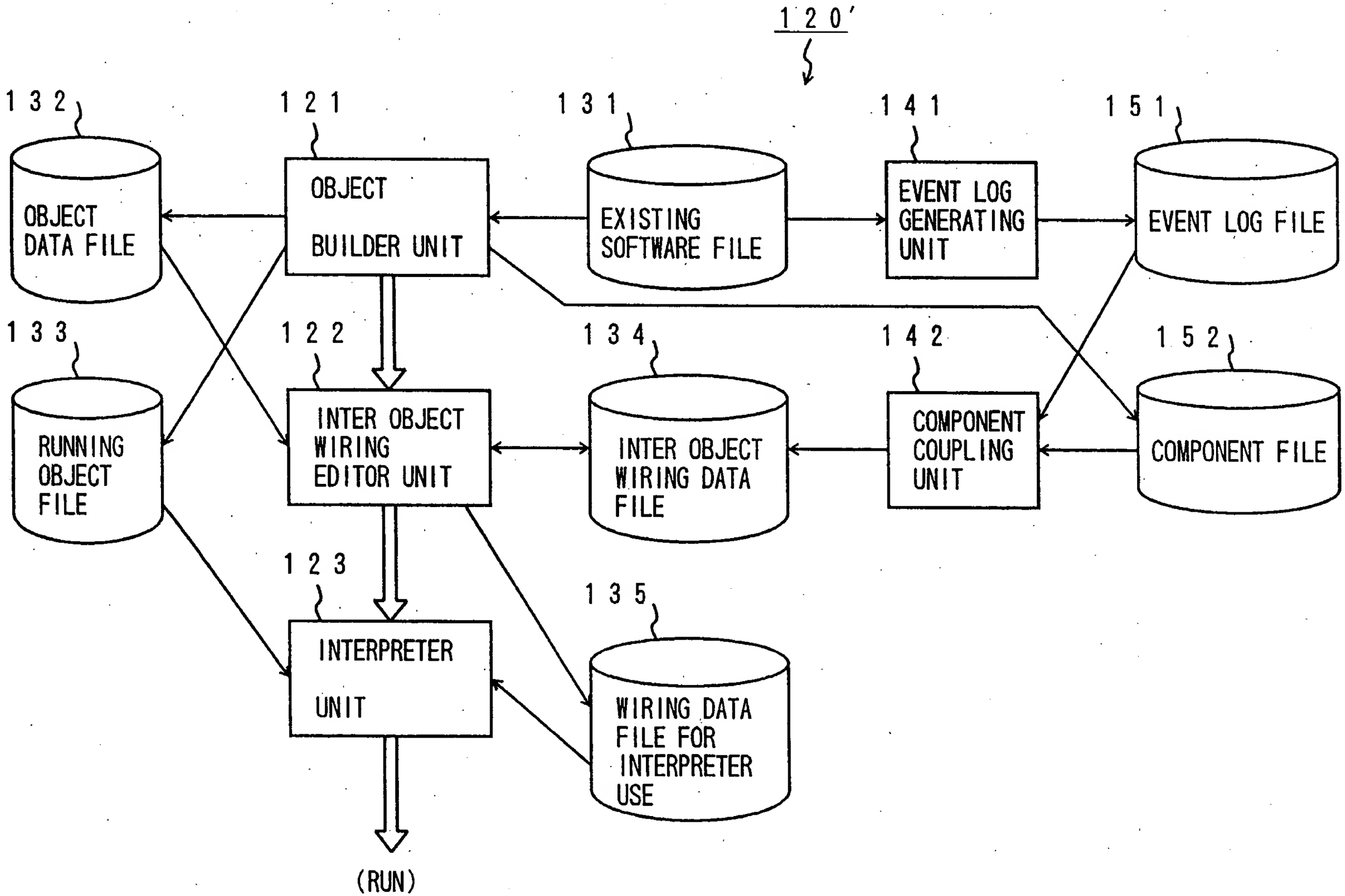

120'
132
OBJECT DATA FILE
121
OBJECT BUILDER UNIT
131
EXISTING SOFTWARE FILE
141
EVENT LOG GENERATING UNIT
151
EVENT LOG FILE
133
RUNNING OBJECT FILE
122
INTER OBJECT WIRING EDITOR UNIT
134
INTER OBJECT WIRING DATA FILE
142
COMPONENT COUPLING UNIT
152
COMPONENT FILE
123
INTERPRETER UNIT
135
WIRING DATA FILE FOR INTERPRETER USE
(RUN)

Fig.110

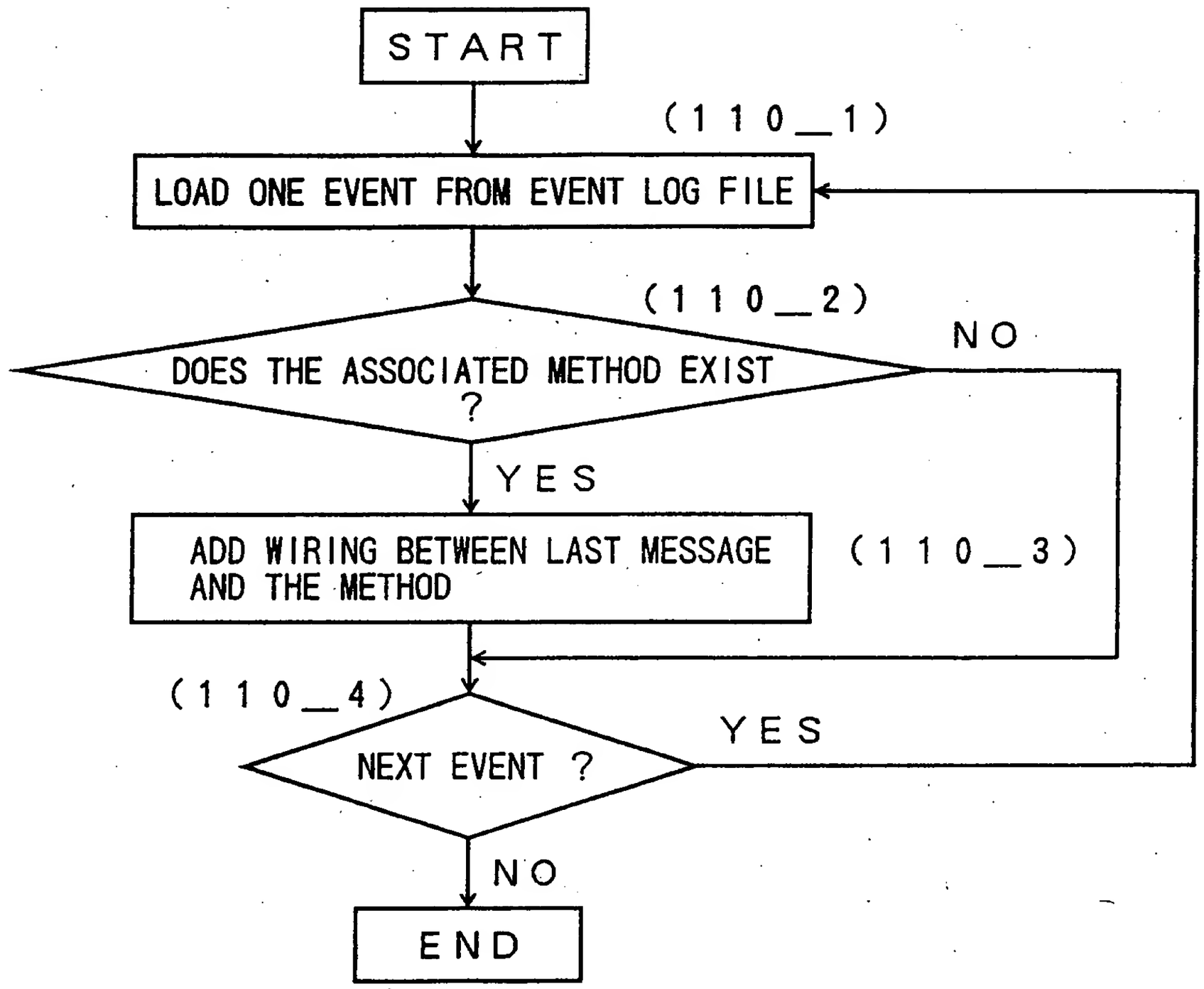


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Fig.111

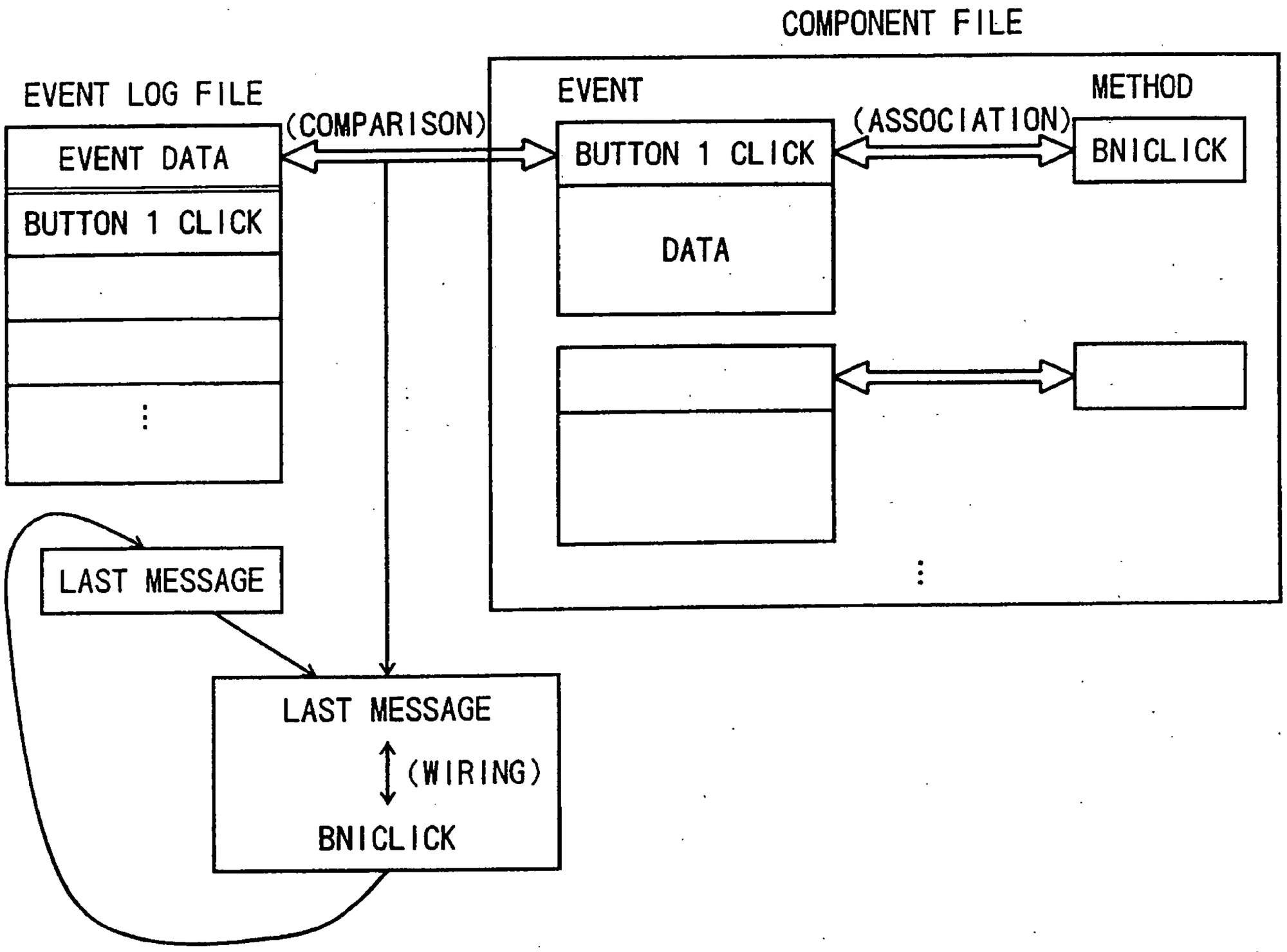
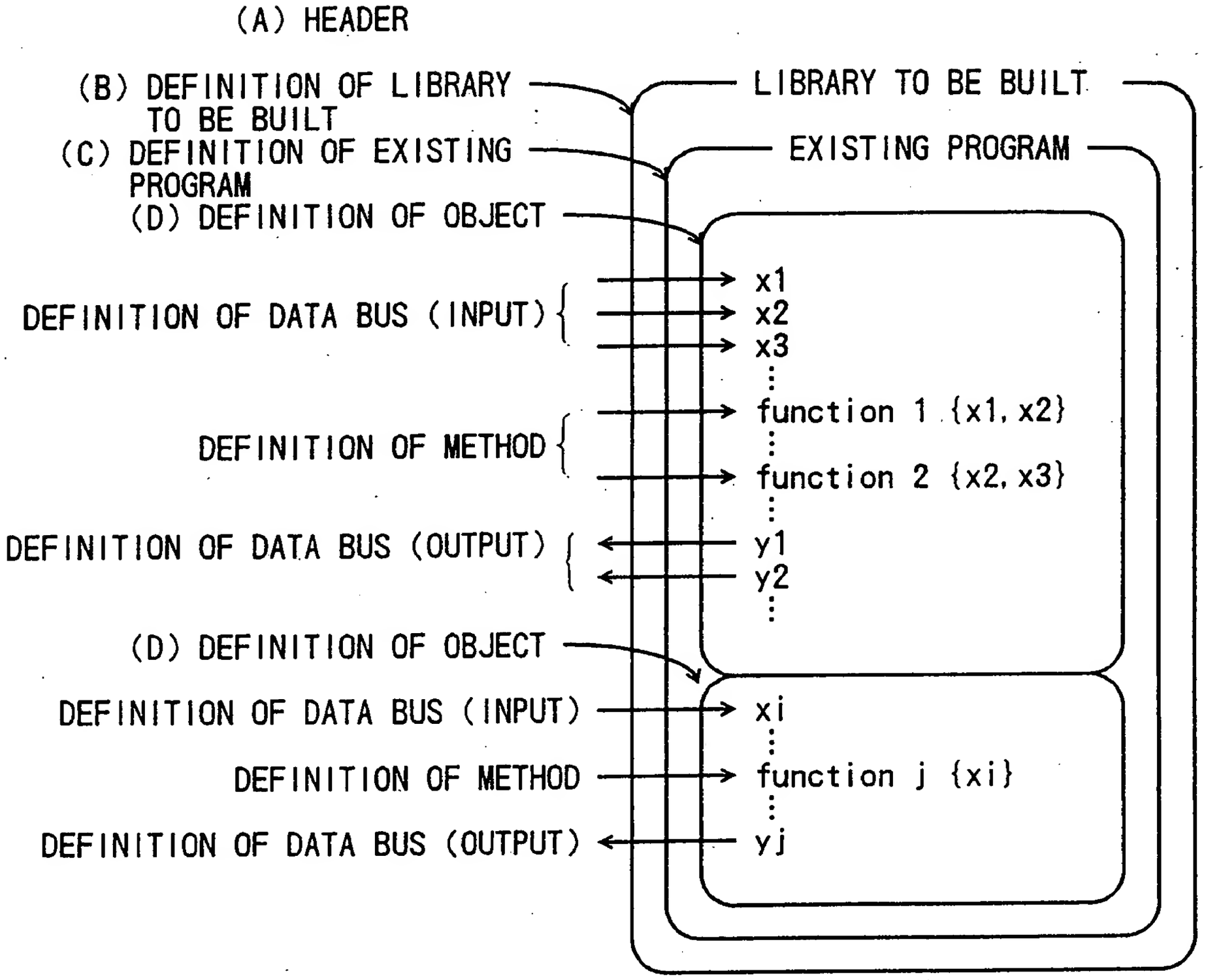

COMPONENT FILE
EVENT LOG FILE
EVENT
METHOD
(COMPARISON)
(ASSOCIATION)
EVENT DATA
BUTTON 1 CLICK
BUTTON 1 CLICK
BNICLICK
DATA
LAST MESSAGE
LAST MESSAGE
(WIRING)
BNICLICK

Fig.112



FOREIGN PCT/JP2004/005960

Fig.113

	ITEMS	KEYWORDS	REMARKS
(A)	PROJECT	LSIBuilderProject	
	PROJECT NAME	LSIBuilderProjectName	
	PATH OF COMPILER SYSTEM	MSVCRoot	
	PATH OF FIRSTSIGHT SYSTEM	CoreRoot	
	PATH OF USER AREA	UserRoot	
(B)	DEFINITION OF ARCHIVES	Archives	
	NAME OF ARCHIVES	ArchivesName	
	PATH OF LIB	LibPath	
	PATH OF DLL	DllPath	
(C)	NAME OF LIBRARY TO BE BUILT	LibName	
	COMPILE MODE	Debug	
	DEFINITION OF #define AND typedef	Header	
(D)	DEFINITION OF LSI	LSI	
	NAME OF LSI	LSIName	
	COLOR OF LSI	Color	TREE COLORS OF RGB (0-255)
	DATA BUS	DataBus	
	NAME OF DATA CORRECTION PROCESS	ProcessName	
	NAME OF DATA BUS	Name	
	TYPE OF VARIABLES	VariableType	CODE OF FUNCTION
	DATA CORRECTION PROCESS	Process	
	DIRECT DEVELOPMENT INTO DefineConnector	Inline	
	DISTINCTION BETWEEN INPUT AND OUTPUT	IO	input OR output
	COLOR OF BUS	Color	
	INSTRUCTION	InstBus	
	NAME OF INSTRUCTION BUS	Name	
	FUNCTION NAME OF ENTRY POINT	ProcessName	
	MEANING OF RETURN VALUE	ReturnValue	zero OR nonzero OR NUMERAL
	INSTRUCTION PROCESS	Process	CODE OF FUNCTION
	Cmd ?	Cmd	yes/no
	DIRECT DEVELOPMENT INTO Cmd OR Command	Inline	
	COLOR OF BUS	Colo	
	GLOBAL VARIABLES	Variables	
	(GLOBAL VARIABLES INSIDE LSI)		
	DEFINITION #define AND typedef	Header	
	INITIALIZATION PROCESS	Initialize	CODE OF FUNCTION
	CONSTRUCTOR	Constructor	CODE OF FUNCTION
	DESTRUCTOR	Destructor	CODE OF FUNCTION

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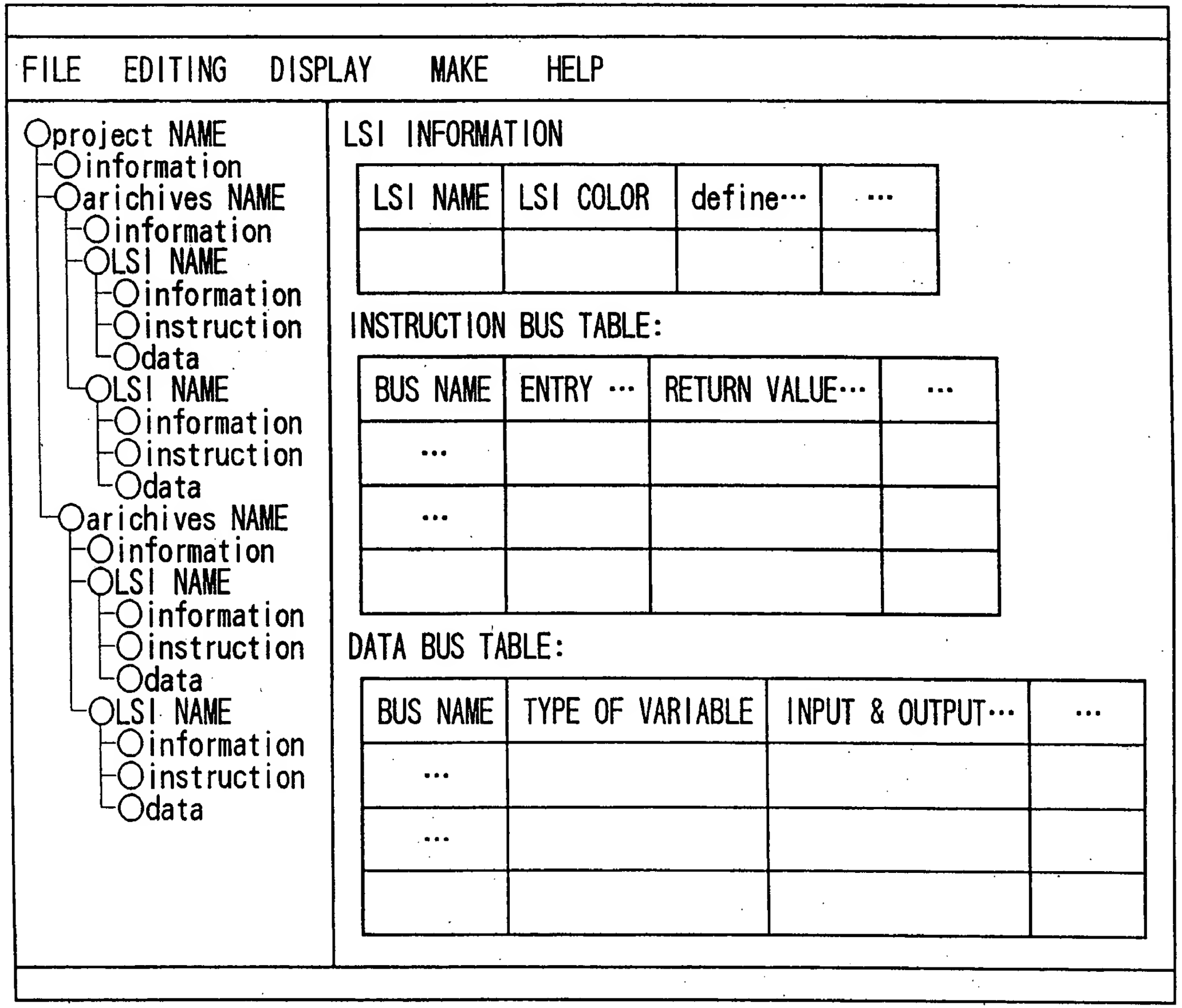
Fig.114


FILE EDITING DISPLAY MAKE HELP
project NAME
information
arichives NAME
information
LSI NAME
information
instruction
data
LSI NAME
information
instruction
data
arichives NAME
information
LSI NAME
information
instruction
data
LSI NAME
information
instruction
data
LSI INFORMATION
LSI NAME
LSI COLOR
define…
…
INSTRUCTION BUS TABLE:
BUS NAME
ENTRY …
RETURN VALUE…
…
DATA BUS TABLE:
BUS NAME
TYPE OF VARIABLE
INPUT & OUTPUT…
…